



# Colophon

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**T**his is a publication of the Foundation Grote Buitenlandse Excursie(s) - Fysisch Mathematische Faculteitsvereniging (Foundation GBE-FMF), best to be translated as Foundation for International Student Excursions. The foundation is founded by the Fysisch-Mathematische Faculteitsvereniging (FMF), the organization for students in Computer Science, (Applied) Mathematics, (Applied) Physics, Astronomy and Biomedical Engineering of the University of Groningen.

The goal of the Foundation GBE-FMF is to organize intercontinental study tours for students of the FMF every two years. The foundation consists of a board and a committee. The board acts as a supervisor while the committee is involved in the actual organization.

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# Final Report



Scientific excursion to Brazil and Argentina





## Preface

I am very proud to present to you the final report of the Scientific Excursion to Brazil and Argentina organized by the committee Iguazú '09. This wonderful, once in a lifetime experience took place between April 15th and May 8th 2009 and brought 25 students and two staff members of the University of Groningen in contact with the science, technology and culture of São Paulo and Buenos Aires.

The organizing committee, Iguazú '09, is part of the Foundation Grote Buitenlandse Excursie(s)-Fysisch Mathematische Faculteitsvereniging (GBE-FMF). The Foundation GBE-FMF organizes an intercontinental study tour every two years and is tightly linked to the Fysisch-Mathematische Faculteitsvereniging (FMF). The FMF is a student association for students in Computer Science, (Applied) Mathematics, (Applied) Physics, Astronomy and Biomedical Engineering at the University of Groningen. The association organizes a lot of activities that contribute to the students' scientific education, such as symposia, excursions and colloquia. Furthermore, the association organizes all kinds of social activities.

The objective of the Foundation GBE-FMF is to organize a three-week study tour outside of Europe which focuses on scientific excursions but also has cultural aspects. The study tour is organized for senior members of the FMF. In the past years there have been excursions to South Korea and Taiwan in 2007, China and Malaysia in 2005 and Mexico and the United States in 2003.

Besides subsidies and contributions of the participants, the main source of funding were casestudies. A casestudy is a research project for a company or institution, performed by two participating students. In this Final Report you can find reports of casestudies performed for Iguazú '09. The main part of this report exists of reports of the official and non-official activities during the trip. Each participant has reported on the activities of one day and, combined, all these reports form the daily reports section.

In addition to the case reports and daily reports this booklet also contains the views and impressions of the foundation GBE-FMF, of the two staff members Prof. dr. H.L. Trentelman and Prof. dr. O. Scholten and of all five members of the committee on the organization of Iguazú '09. This Final Report concludes with some words of thanks to all the people who made the Scientific Excursion to Brazil and Argentina Iguazú '09 as amazing, wonderful and unforgettable as it was.

I hope you will enjoy reading the report of this fantastic experience!

On behalf of the committee Iguazú '09,

Tjitske Starkenburg

Chairman Iguazú '09



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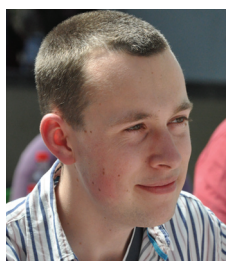
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# Case reports







**'Een project is nooit  
een kunstje dat je  
kunt herhalen.'**

**Micheline, projectleider serious gaming**

Deltares is een onafhankelijk kennisinstituut voor deltatechnologie. We werken wereldwijd aan innovatieve oplossingen voor water-, ondergrond- en deltavraagstukken, die het leven in delta's, kust- en riviergebieden veilig, schoon en duurzaam maken. We doen onderzoek en geven specialistisch advies aan overheden en marktrelaties in binnen- en buitenland. Kennis ontwikkelen, toepassen en delen staan daarbij centraal. We streven naar een duurzame inrichting van de leefomgeving met hoogwaardige technologische oplossingen waarvoor draagvlak is in de maatschappij.

Vind jij het leuk om grenzen te verleggen en zoek je een functie bij een topinstituut met een internationale reputatie? Wij bieden afwisselend werk waarin je je talenten ruimschoots kwijt kunt. Geïnteresseerd? Kijk dan bij de vacatures op onze site. We hebben ook plaats voor stagiairs, afstudeerders en promovendi.

[www.deltares.nl](http://www.deltares.nl)

**Deltares**  
Enabling Delta Life 



## Deltares: Two phase flow in a declining pipe

From January 1<sup>st</sup> 2008, the Netherlands benefits from a new and independent institute for applied research and specialist advice. Together with Rijkswaterstaat/DWW, RIKZ and RIZA, WL | Delft Hydraulics, GeoDelft, and a part of TNO Built Environment and Geosciences form the Deltares Institute. The institute employs more than 800 people. Deltares has a unique combination of knowledge and experience in the field of water, soil and the subsurface. It is frontrunner in the development, distribution and application of knowledge for meeting the challenges in the physical planning, design and management of vulnerable deltas, coastal areas and river basins. Deltares works for and cooperates with the Dutch government, provinces and water boards, international governments, knowledge institutes and market parties. The institute is located in two cities: Delft and Utrecht.

### Background of the case-study

Gas pockets in pressurised waste water mains cause significant capacity reductions, resulting in unnecessary CSOs (Combined Sewer Overflows) and excessive power input. The current state of knowledge on the rate at which a gas pocket is transported through a downward slope, is limited. The CAPWAT joint industry project (Capacity reduction in wastewater pressure mains) is co-funded by most Dutch water boards, several consultants and research foundations. The objectives of the CAPWAT project include:

- Development of a detection method for gas pockets
- Development of measures to minimise air inflow
- Determination of the required velocity to remove capacity reducing gas pockets
- Rate of gas pocket breakdown and transport
- Guidelines for design, operation and maintenance of wastewater mains

High speed camera observations have been made in order to get information about behaviour of gas pockets in pressurised water.

### The case study

A certain amount of gas and a certain amount of water are flown through a declining pipe. Thirteen series of pictures, each series with other flow rates, are taken from above. Each series contains 100 pictures. The pictures show a pattern of bubbles. From this pattern the drag coefficient has to be estimated.

### Method

A formula for the drag coefficient is derived by using Archimedes law and the formula for the drag force

$$C_d = \frac{2A_i \bar{h} g}{v^2 A_b} [\sin(\alpha) - \frac{dH}{ds}]$$

- $A_i$  the interface area of the bubble; this quantity is determined directly from the TIFFs;
- $\alpha$  the angle of the pipe;
- $\rho$  the mass density of the fluid; In this case 1000 g/l;
- $v$  the speed of the bubble relative to the fluid; The speed of the bubble can be determined directly from the TIFFs, the speed of the fluid can be calculated if the outflow and the cross-section of the pipe are known;
- $C_d$  the drag coefficient of the bubble;
- $A_b$  the frontal (or bubble) area of the bubble; This quantity is obtained by measuring the maximal



Geert Reitsma



Hans Kuipers

- width of the bubble, multiplied by a constant  $h$ ;
- $h$  is the average height of the bubbles, which can be calculated if the total outflow of air and the number of bubbles per second is known. We assume here that the difference in bubble heights is negligibly small.
- $\frac{dH}{ds}$  is the pressure gradient of the liquid in the declining pipe. The pressure gradient is determined by using the Colebrook-White equation and the Swamee-Jain equation.

A picture viewer and a picture manipulation program are used to determine bubble velocity, interfacial area of each bubble and the maximum width of each bubble.

### Results

The relations between drag coefficient and bubble volume, between drag coefficient and fluid velocity, between drag coefficient and distance between bubbles and between drag coefficient and relative velocity are obtained. The relation between drag coefficient and bubble volume strongly depends on the ratio between gas flow rate and liquid flow rate. The drag coefficient seems to be constant for different fluid velocities in the range of 100 – 150 cm/s. Also the distance between the bubbles does not influence the drag coefficient.

## NAM



Morten Bakker



Robert Broos

The demand for natural gas strongly depends on the weather. During warm summer days it is almost zero and during cold winter days it is very high. Most of this demand is met by producing natural gas from the large Slochteren gas field in Groningen by production sites called clusters. However, there is a maximum volume that can be produced, therefore the NAM uses so called underground gas storage facilities (UGS), which are empty gas fields that can be refilled to meet the excess in demand during cold winter days. These UGS reservoirs act as a buffer but need to be refilled after use. This is done in the summer when the market demand for natural gas is low.

But the UGS is not only used as a buffer. It can also be used to minimize the power usage during gas production. This works as follows. During low gas demand the cluster can operate in so called 'free flow', meaning that pressure in the field is high enough to produce the volume that is needed. For higher demand however, compressors are used to get more gas out of the reservoir. The required energy to produce a certain flow of gas increases exponentially (see figure 1), making it very costly to produce gas at high volumes. This is not the case for the UGS, which have a large free flow volume. However, refilling the UGS does require energy.

For low volumes of demand the cost to refill the UGS is usually higher than the cost to use the cluster at an increased flow. But if the demand (in winter) becomes higher than a certain volume it can become more efficient to produce from the UGS in free flow and re-inject this gas in the summer. This leads to a so called 'x MW switching rule', meaning it is more energy efficient to switch over to production from the UGS when the power usage of the clusters increases above x MW.

Minimizing the power usage saves money and is good for the environment. But we can take this optimization one step further. Our case study was to extend the switching rule to also include electricity cost. The total cost of the required energy to produce gas does not only depend on the power required but also on when it is required: the energy cost is higher during the daytime than at night



**NAM Bron van energie**

**SRON**

Netherlands Institute for Space Research





### Maatschappelijke organisatie

- Zit u met een maatschappelijk of praktisch probleem?
- Bent u op zoek naar wetenschappelijk advies?
- Heeft u vragen over onderzoek?

### Student

- Wil je onderzoek doen aan een maatschappelijk probleem?
- Zoek je een interessant praktijkonderwerp voor je onderzoek, scriptie of stage?
- Wil je leren communiceren met opdrachtgevers en andere betrokkenen bij je onderzoek?

### Docent/Onderzoeker

- Bent u op zoek naar een interessante, maatschappelijk relevante case?
- Zoek u toepassingen voor uw onderzoek in de praktijk?
- Wilt u onderzoek begeleiden of doen voor of met maatschappelijke partners?

## Dan is de Bèta wetenschapswinkel er ook voor u!



**Bèta Wetenschapswinkel**

### Recente 'fysische' voorbeelden:

*Onderwatergeluid bij het heien van windmolenparken*

Sander van Dijk (Mariene Biologie) toont in zijn colloquium aan dat zeedieren tot op verre afstand schade en schrik oplopen

*Transport van fijn sediment in de Waddenzee en de effecten van mosselbanken*

Sjoerd Rijpkema (Natuurkunde) laat via modelstudies zien dat mossels actief vorm geven aan de morfologie en essentieel zijn voor de natuurwaarden

### Bèta wetenschapswinkel

De Rijksuniversiteit Groningen werkt actief samen met burgers, overheden en bedrijfsleven.

De wetenschapswinkels van de universiteit zijn de vraagbaak voor non-profit organisaties en groepen in de samenleving die onderzoek willen laten uitvoeren. Elk van de vijf grote faculteiten heeft een wetenschapswinkel. Voor de faculteit Wiskunde en Natuurwetenschappen is dat de **Bèta wetenschapswinkel**

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Cluster: Power vs Volume

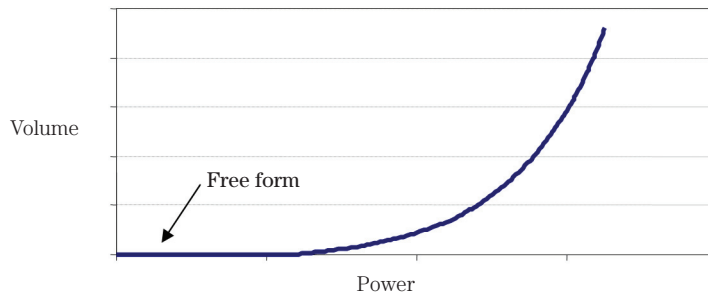


Figure 1. The power a gas production site (a cluster) requires for producing a certain volume of gas.

or during the weekend. But more factors play a role, such as the total UGS volume that is available and the contracts with the electricity companies. We made a model that incorporates these factors both for the coming years as on the long term.

Our main findings were that it is in principle possible to save more on electricity cost and energy by making smart use of the UGS. However, this will become more difficult in the future when the Slochteren gas field gets depleted and the costs to re-inject gas increase. Our simulation helped gaining a greater understanding of the possibilities to use the UGS for energy saving and is a good starting point for the NAM in developing successful strategies.

## University Library

**T**he University Library at the University of Groningen is the university's main library. Not only does it offer a physical location (the kind with books) across the street from the Academy Building, it also maintains the various digital catalogues and search engines that are in use throughout the university.

My casestudy focused on one of these search engines, PurpleSearch, which can be used to search for books, articles and other publications. PurpleSearch is a so-called meta search engine, which means that it does not have a database of its own, but instead forwards the search request to various other catalogues. Because it has access to nearly a hundred different catalogues, PurpleSearch contains some "intelligence" to select a subset of these catalogues that are most likely to return useful results for this particular search query. The actual search queries from PurpleSearch are executed by the software MetaLib by Ex Libris. MetaLib offers the possibility to write arbitrary programs to perform searches, which is what my casestudy was involved with.

Although MetaLib ships with a respectable number of such external scripts, all of these are Perl code of the hairy variety. The developers of PurpleSearch desired a more readable and maintainable solution, written in Python. My task, then, was to write a Python program to perform searches on behalf of MetaLib on servers that use the SRU protocol. SRU stands for "Search/Retrieval via URL", and is a standardized interface that can be used to perform a search query using a single HTTP request, returning the search results in an XML-based format.

The Python code that I wrote for this task essentially consists of three parts. On the one side, there is the interface with MetaLib. The program needs to parse the request that comes in from MetaLib,



Thomas ten Cate



and after the search, format a response to send back to MetaLib. On the other side, there is the SRU interface. The program needs to send an HTTP request and process the resulting XML response. In between these two is a conversion step, that takes the incoming search request from MetaLib and converts it to SRU format. An important part of this converter is the query processor, which converts the actual search query from MetaLib's internal format into CQL, the Contextual Query Language, which is a part of the SRU specification. Another important part is the conversion from the server's XML response, which contains MARC (Machine Readable Catalogue) XML records, into a plain-text MARC format that MetaLib understands. Because all these conversion steps can introduce errors, I wrote unit tests for all modules to ensure a certain degree of correctness.

The resulting Python code has been tested against two different SRU servers, namely WorldCat and the University's OPC catalogue, and works quite well. MetaLib's internal query format is hardly documented, and the user's search terms are inserted without escaping into a query, which made correct parsing impossible and robust parsing a challenge. However, the new parser is much more robust than the original Perl version. As it turned out, not all SRU servers conform precisely to the standard. To accommodate this, the package provides hooks on which custom code can be attached that works around the quirks of one particular server. The package thus makes it easy to add any SRU server to MetaLib, and forms a basis for implementing protocols other than SRU with little effort.

## Science Shop Mathematics and Natural Sciences



*Rob Bremer*

**T**he Science Shop Mathematics and Natural Sciences does research for public organisations, like foundations and associations on the field of chemical, environmental and labour conditions. The aim is to avoid financial barriers for the initiator. It is even possible for organisations to get researches for free, if they are running low in funds for their research. All researches are carried out by students who can use it for a course, bachelor- or master research.

The research of this case study was assigned by the province Friesland. The aim of the research was to measure the average sound level of the surrounding noise in silence areas in the national parks of Friesland. Research is carried out

in 'NP het Drents Friese wold', 'NP de Alde Feanen', 'Ameland', 'NP Schiermonnikoog' and 'Vlieland'. Each location is monitored during two days with a decibel meter. During the measurements, with the help of a stopwatch, all sounds are identified and registered. For example, if from the time 1:15 min. until 1:45 min. a car is heard, this will be registered. The measured data will be analysed with the help of these notes. The total time of each sound source can be determined. From this analysis the contribution of each source to the total sound level can be expressed in percentages.

The aim of this research is to monitor the silence areas, and investigate what are the main not natural sources that give rise to the background sound level. Also statistical values of the background sound are determined, like the L95 value which is the sound level with only the 5% of the lowest sounds. This is a measurement for the characteristic properties of a location. This value is only influenced by the sound of the wind and other natural sounds. Also the Leq value is calculated, which is the average during a complete measurement. Because all values are measured in decibels the loud sounds have a higher weight factor and will influence the Leq values more than other sounds. At each location in a park the difference between the L15 and Leq value gives a measure for the amount of disturbance, where the L15 value is all the surrounding sound minus the top 15% of the loudest noises.

All these results are compared with the results of a report from 2005, with the exact same research, also performed by a student from the University of Groningen. For a fair comparison, the results will be corrected for the differences in the sound of the wind and other 'natural' sounds, by looking at the L95 values. The first impressions: the background levels are almost the same, in some parks there are less disturbances. The final results will be presented in a report and in a presentation in the presence of all the local governments and some people of the County Council.



# MODERNE WISKUNDE

Moderne wiskunde is een wiskunde methode van Noordhoff Uitgevers. Ongeveer 1 op de 3 leerlingen in Nederland heeft les uit Moderne wiskunde (gehad). Een kleine 100 auteurs schrijven jaarlijks producten (o.a. boeken, ICT) van 1 vmbo tot en met 6 vwo.

**Ben jij geïnteresseerd om een steentje bij te dragen  
aan het (wiskunde)onderwijs van Nederland?**

**Informeer naar de mogelijkheden voor een  
bijbaan of stage!**



Noordhoff Uitgevers

Noordhoff Uitgevers bv, voorheen Wolters-Noordhoff, is de grootste educatieve uitgeverij van Nederland. Noordhoff Uitgevers geeft educatieve producten uit voor alle onderwijsniveaus, van primair tot en met hoger onderwijs.

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## Noordhoff Uitgevers, Moderne Wiskunde



*Erik Duisterwinkel*



*Auke Sytema*

### About Noordhoff Uitgevers

Noordhoff Uitgevers (Noordhoff Publishers) has its roots in Groningen. In 1836, Jan Berends Wolters started a book- and papershop at the Guldenstraat. This shop expanded to become a renowned publisher of books like the Bos' schoolatlas (from 1877), the novels about Ot and Sien (1902) and the famous Aap-Noot-Mies (about 1910). In 1858 Popko Noordhoff started a publishing office at the Herestraat. He specialised in scientific and school books.

In 1968 Wolters and Noordhoff merged. Until 2007 Wolters-Noordhoff was part of the division of Education at Wolters Kluwer, then they were sold to Bridgepoint Capital. This caused the change of name from "Wolters Noordhoff" to "Noordhoff Uitgevers".

Since its beginning as Wolters in the Guldenstraat, Noordhoff Uitgevers has developed to become the largest educative publisher of the Netherlands, with over 400 employees today, established in Groningen and Houten.

### Moderne Wiskunde

During math classes in high school, a much-used method is the book "Moderne Wiskunde" ("Modern Mathematics"). This book is accompanied by an electronic study environment on the website of Noordhoff. This site contains a number of i-clips where theory is explained and exercises can be made.

For this casestudy, Noordhoff had the request to create a new i-clip, meant to practice calculation skills. The concept was to practice mental calculation with the operations like add, subtract, multiply, divide, take the root and raise to some power.

We made a game concept in which the problems and answers exist as balls that roll over the game field and need to be combined with each other in the right way.

### The making of the game

The game (see figure) was made with Adobe Flash CS4, with the code written in ActionScript 3.0. First, we made a sum generator that creates an arbitrary problem with some operation and criteria concerning the numbers. For example, with multiplication the first number contains at most two digits and the second number at most one.



Figure: the game

A game field with sumballs (balls with problems) was made, and at fixed moments new sumballs are generated at the top left corner of the screen.

When an answer is typed and the enter button is pressed, the answerball appears with the – hopefully

correct – answer. The sum- and answerballs can be dragged by mouse, so that they can be combined. And when they get impulse by using the mouse they will keep rolling until they hit each other. When the answer is correct the player is rewarded points and otherwise he or she gets a penalty.

A collision algorithm was programmed that enables the balls to collide realistically. Also, a saw was added that can remove answerballs, and the sumballs explode after some time creating a shockwave. A scoreboard and a level setup with five levels and three difficulty levels was made.

The game has been sent to the authors of the *Moderne Wiskunde* manual and it was received well. There were some ideas for further improvement and for features that could be added. The current version will be put on the website of Noordhoff, and maybe a new version will be made in the future.

## GasTerra

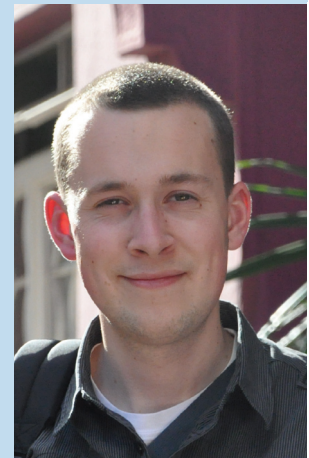
Renewable energy resources are expected to have an even greater impact on the energy market in the next decades than is already the case. Natural reserves of fossil fuels are limited and as the global energy consumption keeps increasing over time, renewables will become the new standard. This transition will be accompanied by a problem of capacity. Since renewables like solar and wind are dependent on the weather, a constant capacity cannot be assured by these renewables alone. These unwanted but inevitable variations of capacity have a direct influence on the organization of the energy market. They must be taken care of, lest power delivery is endangered or even blackouts show up. This is where we enter the stage.

GasTerra is a company trading natural gas on a large scale. For obvious reasons, GasTerra has great interest in the development of the availability of natural gas in the future. Our mission was to investigate the possibilities for natural gas to solve the beforementioned capacity problem, with the goal to present to GasTerra a proposal for further research.

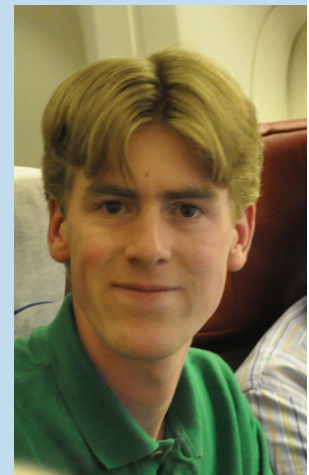
As a part of our investigation, we met with three experts and talked about the ins and outs of the energy market and the future outlooks. Catrinus Jepma, president of the Energy Delta Convention, was the first candidate, followed by Fons van Dam at the Nederlandse Gasunie, and Aad Correljé, of Delft University of Technology. We obtained a lot of information during these interview sessions. The rest of the study was performed using definitions and information, gained from the scientific and so-called 'grey' literature, and the press.

The research proposal was outlined in an extensive report. A plan was presented to investigate the capacity problem in north-western Europe during the period up until 2030. A short overview of the most important energy market factors was given, accompanied by a research model. The report was handed over to GasTerra, where hopefully the research proposal will be executed in the near future.

We really enjoyed investigating this subject. It was a great opportunity to dive into the complicated world of energy, a branch of research that lies on the border between economic, political and scientific issues, which makes it so interesting. The capacity problems will become reality and we eagerly await the political and institutional decisions to counter them.



Roel Tempelaar



Jelle Blijleven



Actief in transitie



Efficiency  
en besparingen



Duurzaamheid



Verbetering  
van milieu en  
klimaat

## Scoringsmomenten

Wie veel aan de bal is, kan het spel bepalen. Dat geldt bij basketbal. Dat geldt in de energiewereld. GasTerra is een van de grootste aardgasbedrijven van Europa. We leveren aan zes landen in de EU. In onze thuismarkt Nederland lopen we nu al warm voor de uitdagingen van morgen. Denk aan groen gas en andere duurzame alternatieven. De ontwikkeling van een nieuwe generatie CV-ketels: de HRe-ketel. Dat is ons speelveld. Daar zijn wij praktisch onverslaanbaar.

  
**GasTerra**  
[www.gasterra.nl](http://www.gasterra.nl)



## UOCG: Information flows

The UOCG (in English UCLT: University Centre for Learning and Teaching) is an institute associated to the university of Groningen which provides training of secondary school teachers and administrates several systems which are used by the university for educational purposes. For this casestudy we investigated the flow of information between these different systems. Examples of these systems are systems for administration of students, teachers, courses and marks, or an online interactive educational platform.

The first thing we did was narrowing our field of research, because there were more systems then we could analyse in the given time. To find out what kind of information is transferred, we talked with experts of the different systems. They gave us a lot of useful information which we next put in a clear and transparent form. We did that by making models of the databases and diagrams of the information flow. This was done on a semantic level, we focused on the meaning of the information, not on the way it was represented. By constructing the models questions arose with which we again consulted the experts to improve our model; this was done repeatedly.

In the end we had an eighty pages long report with a lot of diagrams and models which gave an overview of the information flows between the five most important systems of the UOCG. Our main conclusion is that every expert knows how his own system works and what kind of information is exchanged with other systems, but that nobody had the total overview. With our report we delivered this necessary overview. Minor conclusions were about particular systems. These systems were developed in a long period, but sometimes decisions were made based on short term efficiency instead of long term clearness. These decisions had as consequence that certain information in these systems took strange paths before ending up where it was needed.

We also made some recommendations how to improve the information flows. The main recommendation was to choose one system to be the central system with attached to it the central database. All new information then has to be put in this system before it can be used by other systems. In this way a lot of problems can be omitted, because it is clear where to get your information. This prevents that different systems say different things about the same entity.



*Femke van Seijen*



*Harm Jan Prins*

## UOCG: Creating test cases

The short description for this case study was twofold: first designing and making test case files for the interactions between the website Progress.net and the website Studielink, and secondly improving the automatic test run program.

When constructing new software, you go through several development steps adding one function at a time. It is wise to make test cases and to test new functionalities. Unfortunately, programmers often forget this. They like to add new functionalities and neglect the need for good test cases in order to test what they have developed. You could say that they are too confident about the quality of their own products, however every new release of software always has some bugs.



*Gjalt Bearda*

The University Centre for Learning & Teaching (UCLT, in Dutch known as 'UOCG') is a Centre of the University of Groningen that has three main parts

- Training teachers
- Enhancing the quality of education, for example by quality assurance
- Deployment and development of ICT products, with the emphasis on innovation in education

One of the products developed is Progress.net, which handles student administration from enrollments to grading. The Dutch government has developed the website Studielink where students must enroll for their programs. Since Progress.net does the student administration for the University of Groningen these two systems have to be linked.

I have designed test cases for another program developed at UCLT, the automatic test tool. This test tool has to be filled with test cases which have to run before a new version of Progress.net is released. The test cases exist of a sequence of tasks to be done automatically, like navigating to a webpage, clicking on a link on a page, filling in a form on a page or asserting that some text is on a page.

With combinations of these tasks the functionality of the new version can be tested. For example, changing your name at Studielink is done by completing a form. Then Studielink has to communicate to Progress.net that the name has changed (which is part of the functionality). Next the test program has to check whether the name indeed has changed in Progress.net by asserting the new name in the personality page in Progress.net.

The test cases tested all communications found between Studielink and Progress.net and back. In total four faults were found in the then latest version. Also some inconsistencies between Progress.net and Studielink were found, like the number of addresses.

Additional to the testing, some improvements for the automatic test tool were implemented. These improvements made it easier to build the test cases.

I would like to thank Ceesjan Luiten for implementing the improvements I asked for in the automatic test tool.

## SRON



*Monique Ankone*



*Jasper van Dijk*

**S**RON, Dutch Institute for Space Research, is a Dutch agency that was founded in 1983. The institute has two facilities, one is located in Utrecht and the other one in Groningen.

SRON focuses her attention on the development of satellite instruments. The institute develops and uses innovative technology for groundbreaking research in space focusing on astrophysical research, earth sciences and planetary research. In addition to this, SRON has a line of research into new and more sensitive sensors for X-rays and infrared radiation. The selection of these research disciplines is based on choices made on the basis of instrumental expertise and on the ambition to act as Principal Investigator (PI) in a few preselected science areas.

As a part of the Dutch Organisation for Scientific Research, SRON is the national center of expertise for the development and exploitation of satellite instruments in astrophysics and earth system science. It acts as the Dutch national agency for space research and as the national point of contact for ESA programs.

SRON provides 'the ensemble of knowledge and skills, both technically and scientifically, required to perform a principal role in the scientific utilization of space.'



### The casestudy

Observations in the infrared, sub-millimeter and millimeter windows are of great importance in astronomy. It is therefore that the European Space Agency (ESA) built and launched (on May 14th 2009) the Herschel satellite, to explore our universe in those wavelengths.

SRON is the Principal Investigator Institute for one of the three instruments of Herschel, the Heterodyne Instrument for the Far Infrared (HIFI). HIFI will provide us a continuous coverage over the range of 480 to 1250 GHz in five bands and over the range of 1410 to 1910 GHz in two additional bands. However the information of this instrument is spread out over three different webpages

- [www.sron.rug.nl/hifi\\_icc](http://www.sron.rug.nl/hifi_icc)
- [www.sron.nl/divisions/lea/hifi](http://www.sron.nl/divisions/lea/hifi)
- [www.sron.nl](http://www.sron.nl) → divisions → low energy astrophysics → hifi instr. / hifi science

and it was our assignment to create one website for the HIFI instrument. One website to contain all the information of the three websites, displayed in a structured way. To structure the website we talked to many people from SRON and others (i.e. scientists and students), who could give us more insight in how the website should be structured. This enabled us to create a tree that resembled the structure of the new website. The final result will be shown at

- [www.sron.nl/divisions/lea/hifi](http://www.sron.nl/divisions/lea/hifi)

## Force Vision

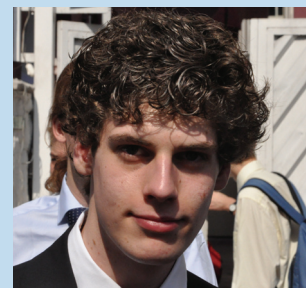
**F**orce Vision is the software engineering department of the Defence Material Organization (DMO). The company designs, develops and implements combat management systems for the Navy's frigates and submarines. A combat management system forms the command and control core of a ship, integrating the various sensor-, weapon-, and control systems used on board. In business since 1967, Force Vision is one of the oldest software engineering companies in The Netherlands.

The security of information is crucial for a combat ship. Classified information should only be available to authorized personnel, and the integrity of the data should remain intact. Also, information should be available directly whenever it is needed. This summarizes the three basic principles of information security: confidentiality, integrity and availability. It is a complex task to check whether a large information system satisfies these basic principles.

This process, called a computer security audit, involves mapping out all entities and information flows within the system and check where breaches of the security might occur. To assist in such an audit, risk analysis methods and tools have been developed. These provide a structural approach for mapping out an entire system, and supply lists of possible security breaches for each type of entity within the system. The tools also provide possible countermeasures to ensure the safety of the system. The Dutch Ministry of Defense prescribes the usage of the risk analysis and -management tool CRAMM for all its departments. This tool is very general however, developed for use with a wide spectrum of systems, and sometimes offers suggestions inapplicable on board a naval vessel. Force Vision therefore asked us to find out which conditions a



Mark IJbema



Mark Abspoel

risk analysis tool should satisfy to be usable for auditing the information security of their systems.

Because we had no access to CRAMM itself we informed ourselves about the system by reading the manuals as well as independent papers and reviews of CRAMM and comparable systems. Furthermore, we reviewed some articles on the usage of CRAMM within the Dutch Ministry of Defense. With the knowledge obtained from these texts we researched the possible demands on such a risk analysis tool.

We eventually produced a list of conditions a risk analysis tool should satisfy. Firstly, the tool should comply to well-tried security principles and conform to the rules and regulations of the organization. Secondly, the situation of Force Vision implies more specific demands on the tool. Specifically it should be able to handle real-time availability and non-monetary risks. More generally it is required that the tool suggests relevant controls and allows for modification of controls and risks. Since we did not know all the specifics of the systems of Force Vision, we additionally suggested a test which should determine whether a certain tool would be applicable to their situation. This test consists of constructing several small test cases, and consequently modeling these cases with the tool, verifying the results and usability of the tool.



*Sander Land*



*Maarten Kruijver*

## Stichting het Nieuwe Stemmen

**T**he New Voting Foundation (Stichting Het Nieuwe Stemmen) aims to stimulate the participation of ordinary citizens in politics and public office. The foundation tries to achieve this goal through harnessing the power of the internet to bring politics closer to citizens, whom it's all about. The foundation consists of science students who get extatic about developing new groundbreaking applications that can gather and present political information in ways never before possible.

In practice, this goal of bringing together politicians and citizens is achieved by creating websites containing for example voting guides or information about politicians. These websites used to be ad hoc solutions to gaps in the communication of politicians and citizens. A new project of the foundation is however posed as a more fundamental answer to the problem of citizens not feeling connected to decision makers. This new project is called You and the Government (jijendeoverheid) and consists of one single website on which the government communicates with her civilians.

The casestudy touches upon one aspect of this You and the Government website project, specifically the aspect of frameworks. An important part of the project is the so called hns.dev database, which lies at the heart of the new central governmental website. This custom built database has several technical features that make it possible to serve millions of pages a day, while maintaining a high level of security with different access roles. For the system to function there has to be put a framework on top of this database. Our casestudy consisted of finding out which framework is suitable for this daunting task.

As a start, we had to find out what the foundation expected from the framework. It turned out that they expected an extremely flexible and reliable open source framework capable of interacting with the xml queries and responses of the hns.dev database. Additionally, it was a wish of the foundation to be able to embed framework widgets into external websites. Based on the wish list we came up with a list of requirements for the framework.

The next step in solving the case problem was to identify several target frameworks which would potentially be usable. We came up with a shortlist of candidates. After this, we decided to compare the candidates on several aspects, making it possible to make a final decision about the technology to implement. Yet, the project is still ongoing, but we expect to see updates from the foundation in the near future!



# De bibliotheek op het Internet



Hoe brengen we de informatie op het Internet bij onze onderzoekers en docenten?

Deze vraag zet aan tot creatief en innovatief werk: ook op de Groningse

Universiteitsbibliotheek.

Geavanceerde zoekomgevingen zoals PurpleSearch worden ontwikkeld, en Web 2.0 is inmiddels onderdeel van ons dagelijkse werk.

De ontwikkeling van een digitale bibliotheek is een van de meest uitdagende ondernemingen van deze tijd!

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universiteitsbibliotheek



- zoeken in honderden databases tegelijk wordt door PurpleSearch eenvoudig gemaakt
- [www.purplesearch.nl](http://www.purplesearch.nl)

## Repositories

- de publicaties van RUG medewerkers worden opgeslagen, doorzoekbaar en beschikbaar gemaakt voor talloze andere zoekmachines
- alle RUG-repositories: <http://ir.ub.rug.nl>

## De Universiteitsbibliotheek gaat 2.0

- ons eigen Netvibes Universe, met relevante links, blogs, widgets etc:  
<http://www.netvibes.com/ruglibraries>
- en we zijn nu zelfs te volgen via **Twitter**:  
<http://twitter.com/Bibliotheecaris>



## Universiteitsbibliotheek Groningen

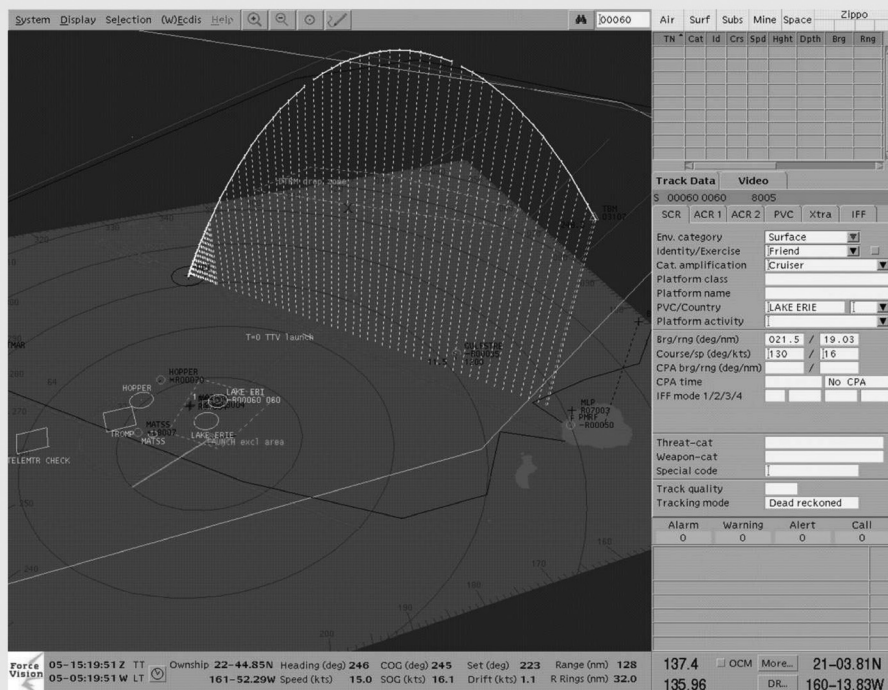
- [www.rug.nl/bibliotheek](http://www.rug.nl/bibliotheek)







**Force Vision**  
centre for automation of  
mission-critical systems



## GAME, SET & MATCH

Bij Force Vision draait het om het ontwikkelen van software waarmee de commandant van een marineschip een dreiging kan pareren zodat hij zijn missie kan volbrengen en met zijn bemanning weer veilig kan thuiskomen. Dat is dus geen **GAME**, maar werkelijkheid. Dit is een voorbeeld van een tactisch plaatje dat door Force Vision software aan de commandant wordt vertoond.

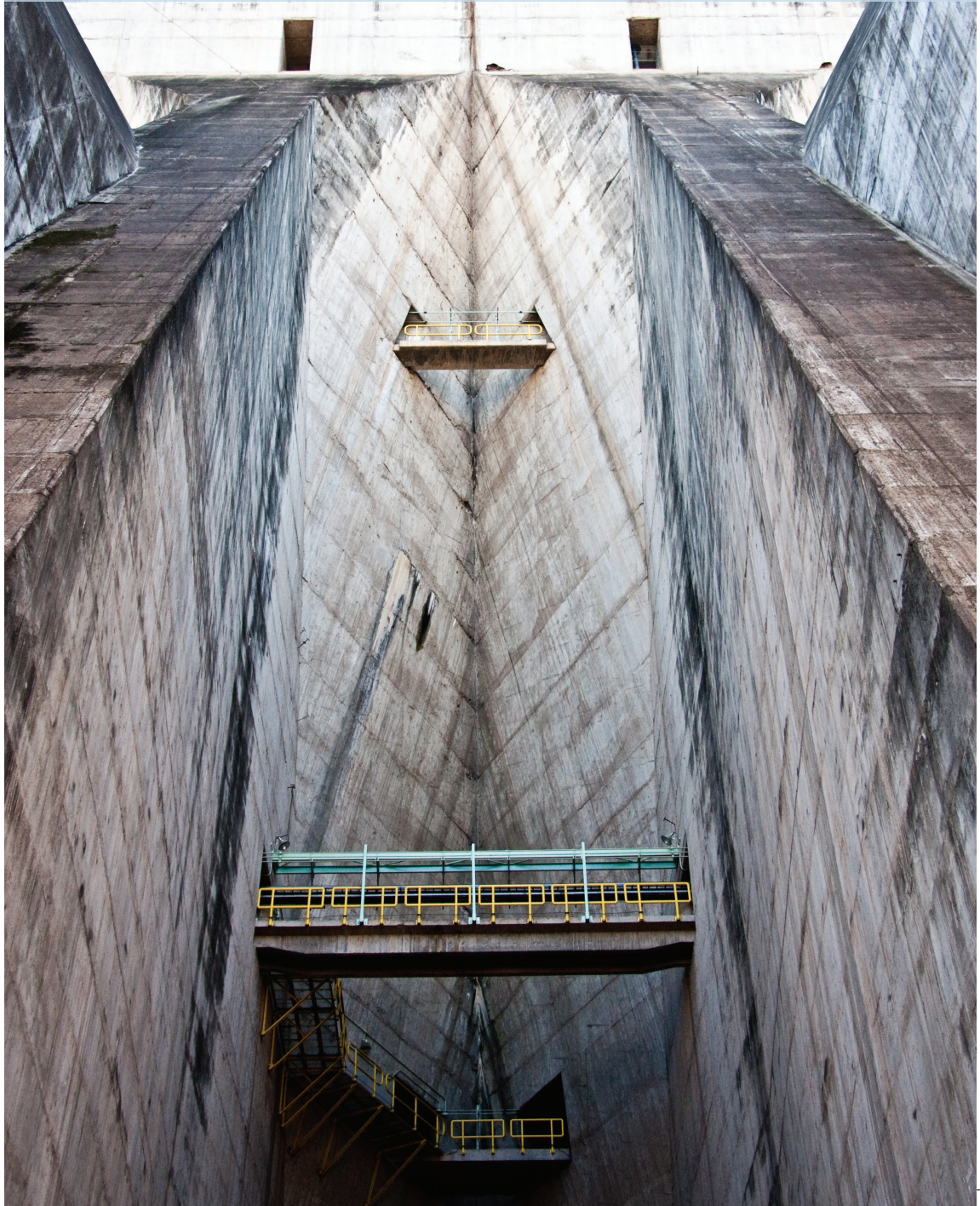
Bij Force Vision vormt de informaticus, samen met de operationele eindgebruiker – in house – een perfecte **SET** om deze hoogwaardige software te ontwikkelen.

Force Vision is op zoek naar business en system analisten, -architecten en -engineers met een WO opleiding **Informatietechnologie**, **Informatica** of **Kennistechnologie** voor deze uitdagende baan. WO starterssalaris is vanaf € 36000.

Ben jij de perfecte **MATCH** en wil je ons team komen versterken kijk dan op [www.forcevision.nl](http://www.forcevision.nl) of solliciteer door je CV en sollicitatiebrief te mailen aan [post@forcevision.nl](mailto:post@forcevision.nl) Vergeet niet je afstudeeronderwerp te vermelden.



# Daily reports Brazil









## Wednesday, April 15

Morten Bakker

**O**n a beautiful Wednesday morning I wake up at 8 am, a bit stressed but also excited about the trip ahead of me. I eat some cornflakes and muesli for breakfast (not realizing how much I'm going to miss this the coming few weeks), repack my bag for the second time and check my packing list for the third time.

I arrive more than an hour early at the train station and find myself a bit surprised that most participants are already there, including a large crowd of family and friends. After saying goodbye to everyone and performing our first 'buddy check' we started our great journey to the lands of 'pau brasil'.

First we travel by old Dutch trains, then by the ultrafast German Inter-City Express (ICE), with a top speed of 280 km/h. After a 5 hour journey by train, including 2 transfers, we arrive at the airport of Frankfurt (the third busiest airport of Europe and the 9th busiest in the world).

After enjoying a simple meal at the airport and buying stuff at the tax free shops, we board our plane, the Boeing 777-300 ER, operated by Transportes Aéreos Marília (TAM). This wonder of modern day technology would fly us 9810 km to São Paulo in only 13 hrs, and that while we can relax in comfy chairs, watch nice movies, even play in-flight poker or simply just sleep, as I believe most of us did quite well.



## Thursday, April 16

Morten Bakker



**W**e arrive around 6 am at the São Paulo International Airport Guarulhos with a 4 hour jetlag. I find my fear did not come true, the weather in São Paulo is even better than in the Netherlands the day we left! During the bus ride from the airport to the hostel we get our first sight of the huge metropolis we have arrived into. With a population of 18,850,000, São Paulo is the 7th largest metropolitan area in the world, really amazing.

After the long journey of more than 24 hours travelling, we finally arrive at our hostel and home for the coming 7 nights, 'Pousada e Hostel São Paulo'. It is located in the Jardins district near the 'Rua Oscar Freire', one of the most expensive shopping streets in the world. But more important: there are sandwiches and, even better, Brazilian coffee waiting for us. After settling down, it was time to start exploring the city. With a group we walk through the Jardins neighbourhood where we have some lunch and our first taste of Caipirinha and Brazilian beer.

In the afternoon we are picked up by a local student, Julio, who is so nice to guide us around. We walk along the Paulista Avenua, the main business street of São Paulo. Next to the skyscrapers there are also some historic mansions where the coffee lords used to live. There is also a nice park, Parque Triaon, the only place left in downtown São Paulo where the original vegetation still remains.

After that we go to a huge shopping mall and have dinner at an Italian restaurant Julio recommended. Afterwards some people go back to the hostel for an early sleep, but I, of course, am going out with 'Jay' to a terrace where they have great Caipirinhas. Then suddenly a huge crowd of young people



appears, it turned out to be 'no pants day'. In some sort of parade they walk through the city, cheering 'no pants, no pants' to passers-by, but as I have not consumed enough Caipirinha yet, I do not join them.

Then with some others we go with two friends of Jay, who are not wearing their pants, to another bar, but this one turned out to be empty.

On our way home we are harassed by some hobo who tries to get money, but luckily all of us get away unharmed. It did learn us the valuable lesson: that São Paulo definitely is not a party city where you can walk around at night alone, and that next to 'no pants day', it is also a city with great poverty.

We also learn that traffic in São Paulo does not slow down at night as our hostel is located next to some six lane highway, and it is not isolated very good. But I think all of us are tired enough or have had enough Caipirinha to sleep well anyway.



## Friday, April 17

*Geert Reitsma*

The first day after our arrival in São Paulo, we visited two of its important scientific institutes, the Instituto de Astronomia, Geofísica e Ciências Atmosféricas (IAG) and the Universidade Federal de São Paulo (UNIFESP). After a fusion of the former geographic and geologic committees of São Paulo in 1886, the Instituto de Astronomia, Geofísica e Ciências Atmosféricas was founded. IAG got the predicate research and education institute in 1972. It consists of three main departments: Astronomy, Geophysics and Atmospheric Sciences.

One of the main research fields of the department of Geophysics is seismology, the study of earthquakes and the propagation of elastic waves through the earth. Another important field is paleomagnetism. This is the study of the record of the earth's magnetic field that is preserved in magnetic minerals. Furthermore the gravity- and magnetic fields of the earth are studied.

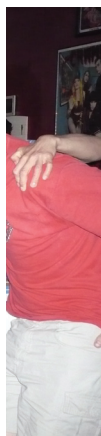
The department of Atmospheric Sciences is involved in research into air poisoning and smog in São Paulo. Air poisoning is still a big problem in this city. Other important fields in which this department is involved are hydrometeorology, the study of the energy and water transfer between land surfaces and the atmosphere, and the study of sea-atmosphere interactions.

The department of Astronomy has as research fields physical astronomy of the solar system, stellar astrophysics and cosmology.

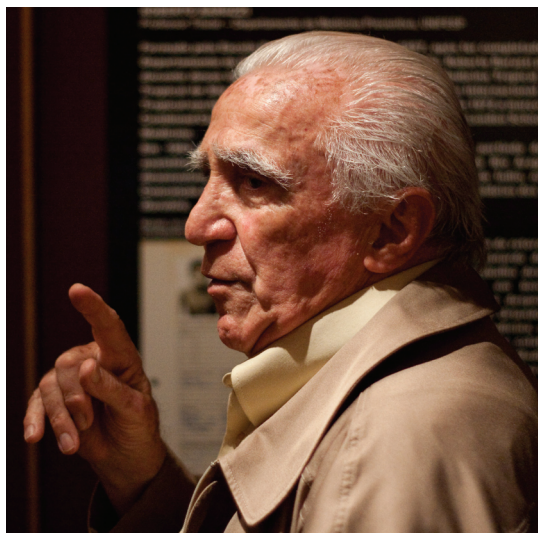
After a welcome in the beautiful coffeeroom of the institute we listened to three talks. Each of the three departments mentioned above was represented. After the talks we visited a few labs. Before our next visit we had a good lunch in the university pay-per-kilo canteen.

UNIFESP is one of the universities in São Paulo. According to the Brazilian Ministry of Education, it is the best institution of higher education in Brazil. Until 2005 it was exclusively for health sciences, but after that year the university became more and more a multi-area institute. The university has five campi. We visited the oldest in Villa Clementino. This department was founded in 1933 as the Paulista School of Medicine. In the years after, the activities were expanded with Nursing, Health Technologies, Biomedicine and Fonaudiology.





The first part of this visit consisted of a talk of Tjitske, on behalf of the organising committee Iguazú '09. Also the staff members gave short presentations. Professor Trentelman told about the high standard of mathematics in Groningen, Professor Scholten did something similar for the Kernfysisch Versneller Institute (KVI). After a very nice coffee break, we listened to a presentation by Professor Baruzzi. He spent an important part of his career on the development of health facilities for the Xingu people. Implementation of vaccination programs and periodic medical checks are some examples of facilities. The Xingu indigenous people are living around the Xingu river in the Xingu National Park in central Brazil. There are around fifteen different tribes which have similar rituals, ceremonies and beliefs.



In honor of Professor Baruzzi, a special Xingu museum was founded by UNIFESP. Doctor Baruzzi himself guided us through this museum. He showed us a lot of objects which are related to the Xingu people. Furthermore he told us about typical rituals and ceremonies of this people.

After this first day in São Paulo we could conclude that the people in both institutes were very kind and enthusiastic. Thank you very much for your hospitality!

## Saturday, April 18

*Femke van Seijen*



## São Paulo and her park Ibirapuera

Unfortunately today's planned capoeira workshop is cancelled, but despite that, the good news is that we have the day off. One group decides to go to climb a mountain near the city, where you can get a beautiful view of São Paulo. Another group is on their way to the highest building in the city, also to get a nice view, but with a lot less effort to get it. The others will see the city on a lower level.

Roel, Cees, Pjotr and Tjitske first leave for the Estação da Luz (Luz station) which is a beautiful railway station in the poor neighbourhood of Luz. After admiring the inside of the station they notice that in the hallway there is an art piece which consists of a piano where is written on that you have to play, so Cees, Pjotr and Roel all play a song. Later, in the park behind the station, Roel is given a copied DVD in Portuguese by a man who very much enjoyed Roel's piano-playing. The man explains that almost everyone in Brazil buys DVDs and CDs as illegal copies, for example in the Rua 25 de Março where almost everyone of the group will walk through today.

After a walk through the park and enjoying art works, a small music band existing of three old men with guitars and boys selling football banners to the cars on the highway, the four decide to buy some refreshing coconuts. While the sight of the seller cutting the coconut is marvellous and the juice really is refreshing, the coconuts contains so much juice that all four soon try to find a place to dump their coconuts. In the afternoon, after a great lunch in a restaurant with live music, Pjotr, Tjitske, Cees and Roel visit the big cathedral in the center of São Paulo. Standing in the square in front of the cathedral is already fun because of all the people performing for the public, selling small goods or proclaiming that the end of the world is near. In the cathedral itself a ceremony is going on but people can still go in and out and for example partake in only a part of the ceremony.



Samuel, Geert, Ester and myself use this day to rest and relax. After a long night and a good breakfast we leave the hostel to visit the Mercado Municipal. We spent quite a long time in the heat of the subway, but we finally arrive at one of the most famous markets of São Paulo. Once inside the building we understand why: it is impossible to think of any kind of food not offered here. We decide to buy a drink: *agua de coco* (coconut water) for Samuel, *suco de manga* (mango juice) for Ester and *suco de maracujá* (passion fruit juice) for Geert and Femke. After this we are getting hungry and decide to buy our lunch on the market and take it to the Ibirapuera park (the second largest park of the city). There we spent the whole afternoon relaxing and sleeping a bit. Around 4 pm it starts to get colder so we leave the park to go to the hostel, change our clothes and head off to the 'clubbing part' of São Paulo to have dinner and go to a club. We walk for almost an hour before we find a nice place to have dinner (without having seen a club either!). The place is more like a bar and we have dinner amongst Brazilians watching a soccer match, which was a wonderful experience. We drink some beers, talk and laugh a lot and are having a great evening without any clubbing; afterwards we go to bed in a pleased and completely relaxed mood.



## Sunny day, April 19

*Mark IJbema*

### Beach and coffee

After the usual breakfast of meat, espresso and sweets we took a chartered bus to the coast. Where we left the city, a beautiful landscape unfolded. The road meandered through the mountains, which were far below the tree line, the view was breathtaking.

We arrived in a little town after a two hour drive, which we entered on a brick road through the industrial park. I was a little surprised when we halted in the harbour, where everything still looked like an industrial park, while we were supposed to go to a coffee museum. However, when we walked ten metres away from the harbour, it was clear that we arrived in a lovely old town.

After exchanging stickers with the personnel we entered the coffee museum. The first thing in the museum was an authentic auction hall. Thereafter we had a photo tour of the history of coffee in Brazil.

As with most industries in Brazil, the coffee industry has come and gone. It started somewhere around 1730 and dwindled from 1930. The coffee industry was at its peak at the midst of the nineteenth century.





Initially the harvest was done by slaves, but due to legislation the industry had to resort to other means from 1831 on. Because of the bad economy in Italy and Germany, a lot of migrants came to Brazil who then leased a few coffee bushes. They shared the profits fifty-fifty with the landowners. Because of the hard work and the small earnings, they could hardly afford to buy food, and a lot of them took refuge in the city. The landowners successfully halted this trend by allowing the leasers to grow corn for their own consumption. From the start of the twentieth century the work was taken over by Japanese immigrants.

Technologically there has been a lot of improvement in the centuries of coffee harvesting in Brazil. The industry started out by using the tools from the sugar cane industry. However, the immigrants could not handle those, and instead opted for importing agricultural tools from Europe. The transportation methods have also been vastly improved. At the start of the nineteenth century this was still done by animals, but halfway through the nineteenth century the railroad was introduced in Brazil as means of transport.

Now that we knew the history of coffee in this area we really needed a cup. Everyone took some coffee specialty with some cake. When we finished those there was little time left to do anything else in Santos, so most of us opted for a small tour around town. When our time was up we boarded again and set off to Guarujá.

After a round trip through Guarujá where we passed a red Ferrari with FMF on its number plate, we ended up on the north side of the beach. We dipped into the sea as soon as possible and let the waves break on us while surfers swerved around us. Swimming is easy to appreciate given the hot temperatures we had in São Paulo.

Another welcome refreshment was drinking from unripe coconuts. The sellers would cut the coconuts with a big knife and serve it with two straws, because it was way too much for one person.

After everyone was refreshed in one way or the other, Robert decided to give some capoeira lessons. While receiving strange looks from the locals, we had a lot of fun. At the end of the day we ate with the whole group at a seaside restaurant. After dinner some used the time which the bus took to arrive to play a game of volleyball with the locals. I however opted for a cup of coffee, which in the end did not help at all: the moment I sat down in the bus I drifted away...







# Monday, April 20

*Auke Sytema*

The day started at 00:00 am, as we (Erik, Femke, Rob, Samuel, Geert, Robert, Maarten, Tjitske and Auke among locals) had settled for a drink in a bar called “the Favela bar”. Listening to some good live samba played by a band with a guitar, drums and a singer, we talked to people, mostly students. It was a very nice samba; people were dancing, one girl was standing on her chair waving her arms... she was a fan, had one of his cds.

I told one student that a couple of us accidentally walked in the neighbourhood of Luz on Saturday when we explored the area around the crowded market in the street 25 de Março (known as the largest open-air shopping center in Latin America) and although she lived in São Paulo for all her life, she said “no I’ve never been there, it’s dangerous!” I told her we had noticed.

Because of the partying I got up a bit later that morning than most others, so I missed the opportunity to go to the old historic centre or the Ibirapuera Park. Fortunately I had already visited these.

After lunch we went to the São Paulo Stock Exchange. It is called BM&F Bovespa and was founded in 2008 as a fusion between the Brazilian Mercantile & Futures Exchange (BM&F) and the São Paulo Stock Exchange (Bovespa). The São Paulo Stock Exchange was founded in 1890.

We were invited to attend a talk about BM&F Bovespa and to go to the open outcry session of derivatives. On a yearly basis, the stock exchange receives ten thousands of guests; it takes this informing role very seriously.

BM&F Bovespa is the fourth largest stock exchange in The Americas, behind NYSE, Nasdaq, and Toronto Stock Exchange. It is also the thirteenth largest in the world, in terms of market capitalization.

Brazil did not suffer as much as other countries from the financial crisis that started in 2007, because the financial system is well-regulated. The Central Bank has vast reserves (around R\$ 180 billion, April 2009), and this is not only because of good policy but also because banks have to do a mandatory deposit to the Central Bank and this deposit can be as high as half of the invested money. Also, the banks themselves are very well regulated due to crises in the past.

Of all international companies in Brazil, 63% has a main office in São Paulo. Some of the largest companies of Brazil include Petrobras (oil and gas), Vale (mining) and Banco Bradesco. The service sector is the largest component of the Brazilian economy, at about 70% of the Gross Domestic Product (GDP), followed by the industrial sector at 30% and agriculture with 3.5%.

After the talk and a 3D-video explaining stock trade and the BM&F Bovespa Stock Exchange, we went to the derivatives open outcry session. All other stocks are traded electronically (as is done at Euronext in Amsterdam), but the derivatives are still traded manually. The part of the trading floor where this takes place is called a pit. A person in the middle of the pit is accepting all the orders and writing contracts while the people surrounding him get orders by mobile phone from their bank. They use a





special form of sign language for communicating actions and prices. A regulator sits behind a desk to ensure the trading rules are lived up to.

In July 2009 the open outcry session will be converted to an electronic trading system, from then on all trading is done electronically.

After the visit to BM&F Bovespa, we wanted to go to a restaurant nearby. But they only served small tapas and that would not have been sufficient for our appetite as it would not comply with our increased need for meat, caused by familiarization to the Brazilian diet. So we went to the hostel to change our suits for something casual and then went to another restaurant.

## Tuesday, April 21

*Hans Kuipers*



**T**oday Jos Schoenmaker took us to a favela in the east of São Paulo. A favela comprises of land squatted from the government. One first places a provisional house of wood, that later (sometimes) can be upgraded to a house of stone and further.

The favelas are in the hands of organized crime. On top of that, there is a large drug problem. On the other hand, nowadays the number of murders decreases as the gangs don't want any hassle with the police. In São Paulo about one million people live under the 1 US\$ poverty line. The favela we visited is situated on the eastside of São Paulo. First, we were received by people from the Associação Casa Branca with coffee, fruits and cake. This was the most heartily reception of our entire trip in South America!

The association Casa Branca has been established in 1986 by the Catholic Church. Their motto is "terra de Deus, terra de todos" (land of God, land of all). In 2003 they finally succeeded in completing the project. After completing the houses, they became more active on social issues.

This association is a collaboration of (mostly female) favela inhabitants that on their own set up house-building projects. From start to end they take care of the projects to provide the favela with good homes. This all with financial contributions from the government. Because they do all the work themselves (on a voluntary basis), they can build much cheaper than the big corporations. With the remaining money they can build extra provisions or houses. Schools and crèches are taken care of by the government. When a house is completed, the inhabitants start paying back. This is about 18.000 R\$ per home, which can be payed in six years. Even when this might not be possible, it is not such a big problem. Officially, the houses are not to be sold to others, but still this happens a lot. There is a change of about one fifth in inhabitants. Those newcomers have no knowledge about the coming about of the neighbourhood and its culture which can cause problems.

Especially the women participate in the projects. The men rather go feasting or playing soccer in their spare time, while the women like to have a home of their own one day. They are continuously at work (even on Sundays and holidays) to get this done. The project has a large influence on their daily and working lives. All work is done by volunteers, except the technical work, which is done by contractors. After completion of the houses, the collaboration continues on the social area, for example by



organizing activities to keep the children off the streets, or taking care of the homeless and the elderly.

In the building where we were received was also a computercenter for the youth and for education located. This is for most of the favela inhabitants the first contact with modern informatics, and so it is important for the so-called "digital inclusion". Some universities make grants available for the association. The students get one day a week contact education, all else goes via the internet.

At the association building Jos sang some songs about São Paulo and translated them for us. We tried to sing some Dutch songs, but that did not work out that well.



Next, we were taken for a tour through the neighbourhood. Favelas like this one usually start around a small brook. This gets canalized bit by bit, and a lot of small alleys start to connect the numerous houses. The houses within the project are all made of bricks, and leave a decent impression. We had a look at the inside of some of these houses, and there as well we noticed that they were pretty decent. On a lot of houses appeared graffiti paintings. These are marks of the different gangs operating in the area. The association Casa Branca also has its own community centre building and a sports field. They are now working on building a roof and toilets there for the sports field.

Next, we descended closer to the brook. This area of the favela lies outside the project. The contrast is enormous. Here there are no brick houses, but corrugated sheets and wood. But even in those slums there are televisions, dvd players and cars. In contrast to what you might expect, the atmosphere was very friendly, we noticed no hostility at all. Because the favela uses the brook mostly as an open sewer, it is not very healthy living next to it. The local council therefore buys the inhabitants near the brook away from their land for 500 R\$. But because they have nowhere else to go, they eventually return to the favela and rebuild their house near the brook. Projects are developing to assign them to social housing plans.

After the tour we went to our second destination. Here we were the guests of association Samosi, that operates for improvement of the neighbourhood. Think of pavement, schools, etc. Also, they organize extracurricular activities for about 65 children between 6 and 15 years old. All of this is in corporation with the local council. Again the reception was very heartily. We were served a traditional Brazilian meal, a meat and bean stew called feijoada. This meal is very tightly connected with the slave history and was used to be made out of meat scraps. Also there was coffee and a dessert with passion fruit.

Here we took a walk through the favela as well. The worst part has been demolished years ago and its place has been taken by social housing projects. For this the inhabitants pay 64 R\$ per month for 25 years, plus 25 R\$ for maintenance. We met a family that makes a living by collecting recyclable garbage. They take it from garbage cans, and sell it to buyers for about 35 cents by the kilo. Here as well there are extended sports fields and crèches.

When we returned to the building of the association, we were treated with a capoeira demonstration. (there are lessons for the children of the neighbourhood every week and this demonstration was organised for us within a few hours when they heard we had not seen any capoeira yet - red) Robert took part in the demonstration. After the capoeira they also showed us a traditional dance. Jos also took up his guitar again and sang another song. After yet another African dance it was time for a cup of coffee. Again we were taken care of enormously well, with nice sandwiches, fruits and juices, it was perfect! After the coffee break some of us played some of the traditional Brazilian instruments. They managed pretty good!





Unfortunately the time had come to return to our hostel. As a farewell gift we received a number of paintings, made by the neighbourhood children.

What I -and some others with me- remember the most about these visits, was that these were really the most friendly and enthusiastic receptions we experienced during our entire trip. The people in the favela may live under very piteous conditions, they certainly keep up their good attitudes! They adjust their lives to the difficulties while staying happy!

## Wednesday, April 22

Robert Broos



### Excursion to ITA and UNIFESP

On day eight of our visit to Brazil we went on a daytrip to the Instituto Tecnológico de Aeronáutica (ITA) and the computer science department of UNIFESP. We woke up early after a swinging samba-soul party the night before to take a bus to São José dos Campos. This is a small city near São Paulo and has a lot more green.

After a short detour (the campus was difficult to locate) we arrived at the computer science department of UNIFESP. This department is situated in a nice yellow building with a partly open roof. After a short introduction of the University of Groningen and two presentations by Professor Trentelman and Professor Scholten we got a chance to talk with the local students about their studies. We discovered during these discussions that Maxima is completely unknown in Brazil.

Next on the program was a short lunch where you paid a fixed price per kilo which meant eating a lot of nice Brazilian food ranging from sushi to big grilled pieces of meat.

After lunch we went to ITA. Because ITA is located on military terrain we underwent a (passport) check before we were allowed to enter the campus. Since the dean had an accident and recently underwent a knee surgery we got an introduction to the institute by the vice-dean.

ITA was founded in 1945 by Professor Smith from MIT and a Brazilian called Casiniro Montenegro Filho. Its purpose is to develop aeronautical technology for Brazil. Therefore the main activities are education and R&D. When the institute was founded it was situated in Rio de Janeiro but it was moved to São José dos Campos in 1954. ITA is part of the Ministry of Defence. This is different from the other educational institutes in Brazil which are part of the Ministry of Education. ITA often works in collaboration with UmbraAir. This is the third largest manufacturer of airplanes in the world.

Since ITA is considered one of the top educational institutes in Brazil it has a strict selection with a difficult entrance exam. Besides a set of high grades it is important for students to have participated in extra-curricular activities to be selected.

After the introduction by the vice-dean, Cees gave an introduction about the University of Groningen. During this presentation one of the people in the audience almost fainted but was saved by some cookies from someone else. Also Professor Trentelman and Professor Scholten gave their respective presentations.



Next on the program was a tour of the building and its labs. First we visited the aeronautical lab. Here we learned about the different projects that were done at ITA. One of the projects for instance was the development of an unmanned air vehicle (UAV) to discover defects in electrical cables using infrared



cameras. We also saw parts of the first Brazilian airplane and a wing of a Mirage (a famous French fighter plane). Notable about this lab was the large amount of wind tunnels that were available for research. In total there were 7 wind tunnels that ranged from small (2 metres) to large and supersonic (about 20 metres). An interesting story was told about a V2 engine that was used for educational purposes. In the exhaust of this engine the students once found a rat that was completely burned after an experiment.

After the aeronautical labs we were divided into two groups and visited the manufacturing or robotics labs.

The manufacturing research at ITA considered the complete cycle of manufacturing. This means from product design to the actual manufacturing process. In the labs we visited we could see some of the machines that are used in this process. One machine that was showed was a 3D printer that could turn a 3D design (autoCAD) into a physical 3D object. This machine used a bottom up approach (which means material is added). Some other machines that were in the lab used a top down approach (material is removed) by etching away material (usually metal) until the right design is obtained.

The other group went to the robotics lab and saw various implementations of robots and the research done with them. One of these robots could be controlled via the internet on [www.lmi.ita.br](http://www.lmi.ita.br).

This tour concluded our visited to ITA and our trip to São José dos Campos. We had an interesting day and saw some nice practical research that has an important contribution to the Brazilian Aeronautical Industry.







## Thursday, April 23

Jasper Spaans



After the urban jungle of São Paulo and the beautiful beaches of Santos and Guarujá it was time to go for a different look of Brazil. Alas, it also meant another day of patiently waiting at the airport and traveling a lot. Fortunately, all went well and before we knew it we arrived at the airport in Foz do Iguaçu. The temperature was great and the bright sun was smiling at us. A local band promoting their concerts welcomed us with some local reggae-like music, and overall I felt a vibe of excitement to be there. A chartered touring car brought us to our hostel and on the way it became clear how green and afforest Brazil is outside of the city. The hostel itself was an even more pleasant surprise as it was set up like a kind of campus, with the rooms and facilities scattered in the green.

We were barely installed in our rooms when the first people took a dive in the outdoor swimming pool. Quickly we discovered the cheap but great caipirinhas that were available at the bar facing the pool. After checking out the hostel and having a few drinks it was time to have dinner. As the hostel itself was kind of in the middle of nowhere we had to take the hostel bus service to get to the city. This appeared to be a remarkable party bus with an even more remarkable bus driver who was quite able to discriminate the “chicas” (chica, yes. Pretty.) from the “chicos” (chico, no. Dracula.) and doing his catchy singing from its particularly small songbook. It did not took long before we all could sing along the evergreen “pa-pa-paa, pa-pa-paaa”. When we finally arrived at Foz do Iguaçu (the bus’ max speed appeared to be only slightly higher than when taking a firm hike) we got ourselves a nice buffet from a local fish restaurant and closed the day with a pleasant evening in Foz do Iguaçu.

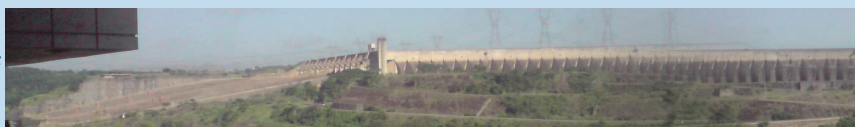
While some immediately after the dinner took a cab back to the hostel to sleep or to swim in the pool and drink caipirinhas or caipiroscas (caipirinhas with vodka instead of cachaça), others decided to walk through Foz do Iguaçu and see whether there was some café or club open. This group subdivided and, either after a short walk or after visiting a local bar, at least two of the smaller groups went back to the hostel using the regular bus. The drive was quite exciting because the road was very dark, there were but a few bus stops and no-one knew where exactly they had to stop. In the end everyone managed to find the hostel and might have seen some owls, bats or some of the other neighbours of our hostel during the walk from the bus stop to the hostel itself.





Friday, April 24

Jelle Blijleven



## The Itaipú Dam and the Brazilian Iguaçu National Park

At seven o'clock the alarm clocks rang so that the participants could have breakfast between half past seven and eight. Then the bus with its odd driver arrived on time at the Paudimar Campestre hostel close to Foz do Iguaçu. The driver welcomed Dracula, Frankenstein, Claudia Schiffer and the chicas to enter the bus – sólo chicas, chicos no. After some 'negotiation' to let the chicos enter the bus as well, departure was slightly delayed due to the bus driver deciding to take a banheiro stop. But then we were on the road, shaking and jolting in unforgivingly hard seats.

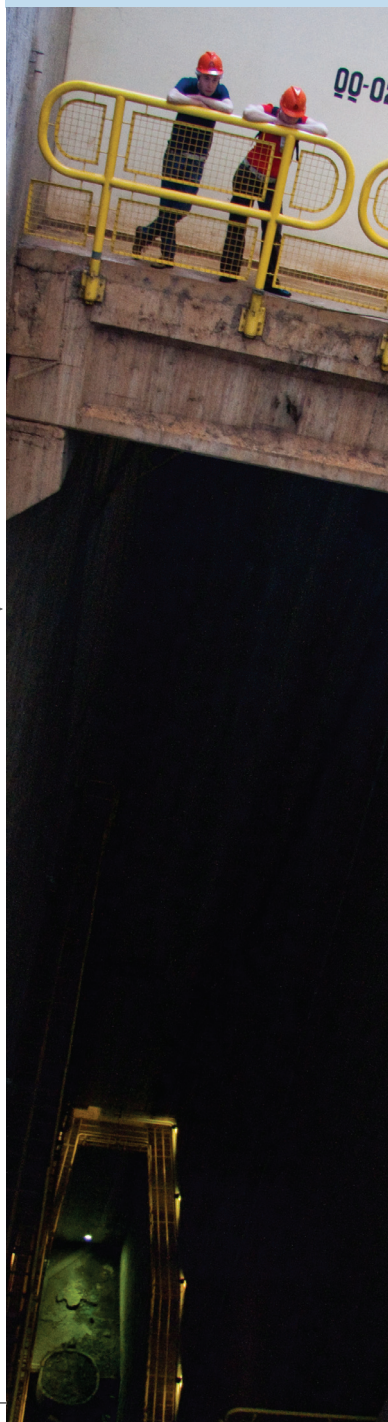
There was Itaipú: a huge dam in the way of the river Paraná creating a reservoir of about 30 billion cubic metres. With a production of up to 14,000 megawatts it produces twenty percent of the Brazilian and ninety percent of the Paraguayan electricity. To give an idea of the scale of the Paraná River, I will describe some facts. The Rio Paraná measures some 2500 kilometres in length and flows through Brazil, Paraguay and Argentina. The Paraná starts in Brazil, makes its way through the Itaipú dam towards Argentina. There it forms the border between Paraguay and Argentina for some length. It passes another dam, the Yaciretá dam, confluent with the Paraguay river and then moves on, forming the Paraná Delta close to Tigre, Buenos Aires, whereupon it confluent with the Uruguay river to form the Río de la Plata. As the reader will see, we will meet with the Paraná in more places.

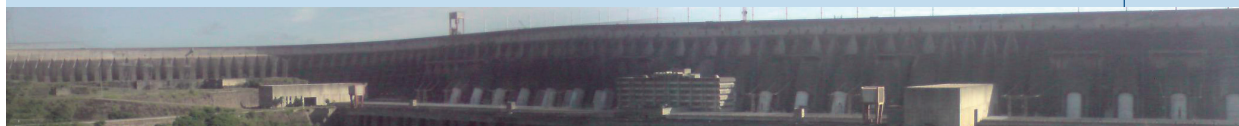
Into the dam, level 144. We heard a lot of information regarding the year the building of the dam was started, with signing of the Itaipú treaty between Brazil and Paraguay in 1973. The electricity the dam produces is evenly divided between the owning countries, but since Paraguay cannot make use of all its own produced electricity, part of it is sold to Brazil.

Level 108. There are no floor numbers in the dam, but each level has the name of its distance in meters from the sea level. Half of the twenty installed turbines produce electricity at 60 Hz for Brazil, the other half at 50 Hz for Paraguay, each turbine capable of producing 700 MW.

Level 92. Itaipú means 'the rock that sings' in Guaraní, the native language of Paraguay. Eventually we had some time on top of the dam where on one side the water was a few meters below and on the other a hundred meters below.

Then our happy bus driver brought us to the other side of Foz do Iguaçu, to the Brazilian Iguaçu National Park. There we met with our fair haired Mrs. guide, probably dyed, not especially bright, who would accompany us during our stay in the Brazilian park. She first led us through the museum, explaining the pictures we encountered there with a most unclear accent of English, but luckily we could also read the text. A bus with open roof then brought us to the farthest point in the park where we





could have lunch. While on the road our jungle experience was a bit diminished by the frequent audio announcements about the next bus stop, but it was still an interesting ride. The restaurant brought us what we needed, a good lunch in beautiful surroundings -we could choose our meal from the buffet- and a view on the Rio Iguaçu just before it makes its fall into the Garganta del Diablo. This was the river that came all the way from the Serra do Mar to flow along our lunching spot to merge with the Paraná river which showed itself to us in the Itaipú dam already this morning.

We started our tour of the waterfalls and descended to have gorgeous views of the waterfalls. There was a permanent spray of water around the falls and warm sunshine creating multiple rainbows. From the spot close to the Garganta where we could see the most of the falls themselves, we made our way up the slopes through the jungle. Everybody liked the presence of the South American Coati, small mammals with a long nose and a striped tail in a small group with at least one young animal, and the abundance of tropical butterflies, from deep black with red and purple reflecting to partly transparent ones. On some wet rocks black with yellow striped Millipedes found their way. Following the path, we had magnificent views on the rainforest and the river, and also on a rock plateau where groups of vultures were taking a rest. We walked in small groups in a long line and the disadvantage of this showed when it became clear that two members of the group, Mark and Gjalt, were missing. A small expedition went to seek them out. It would appear afterwards that they had lost the group after the group photo close to the falls and sadly missed out on most of the afternoon program. After having taken a break because of the heat the main body of the group continued into the rainforest and we had an enjoyable sight of it. By then the redundancy of having a guide was absolutely clear.

There was the end of the visit already and successively an open bus and the bus with the cheerful driver brought us back to the hostel where we had a good evening with the swimming pool and ping-pong. It was a beautiful first introduction to the Iguazú Falls which we would continue the day after.





## Saturday, April 25

Thomas ten Cate



“Chico! Seat belt!” It was, of course, a ridiculous command. Our vehicle could best be described as a gazebo on wheels (with a suspension to match). Obviously, the wooden benches had no seat belts. But our driver was joking, as usual, while he hopped back into his seat after the Brazilian passport check. We next drove in the strip of no man’s land between Brazil and Argentina. Soon afterwards, we arrived at a large bridge which started on one side of the Iguaçu river and ended on the other side of the Iguaçu river, meaning it crossed the official border between the two countries.



The Argentinian side of the passport check took place at the typical South American pace, which meant that twenty-six of us reclined in the early sunshine, and the twenty-seventh took his one-hundredth picture of the four German ladies who happened to be travelling with us to the Iguazú Falls that day. Soon after, we reached the entrance of the park. Our driver got up from his seat. “For chicas, I am Antonio Banderas,” he said, while putting on a leather cowboy hat. “For chicos, Dracula!” he added in a deep voice, as he stepped out of the bus.

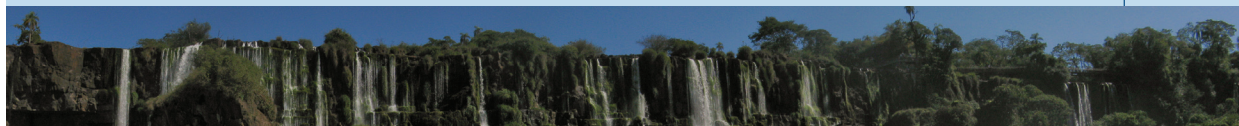


Suddenly, while the driver was away, the bus started to roll backwards! There was much screaming and shouting until one of the driver’s brave colleagues jumped in and found the parking brake. On his way out, he noticed the blue and yellow flag of our driver’s favourite football club hanging behind the windshield. Clearly, the colours were not to his liking, since he removed the flag and replaced it by a shirt of his own team. Noticing this from outside the bus, a third man, who had up to that point been standing outside with a smoke, nicked the blue and yellow flag and used the windshield wipers to put it across the entire windshield. This gave us an idea, and a minute later the windshield was decorated with our very own FMF flag. This silliness did not last long, however, as we were allowed into the Iguazú Falls park.

We would start with a safari tour through the jungle, but like everything up to that point, this required more waiting. Some of us took the opportunity to walk down the shortest trail in the park. This trail was supposed to lead down to a view on the waterfalls, but we had to turn back before we reached that point. All we saw along that trail were some bickering coatis and four familiar-looking German girls on a train.

Shortly after returning from this nonadventure, our jeep safari started. In the back of a large truck not unlike our gazebo on wheels, minus the roof, we were driven down a jungle trail. Our guide spoke enthusiastically about the local flora and fauna while huge green butterflies fluttered ahead of us, trying to escape from that huge metal monster.

The safari ended at the top of some stairs that led down to a beach at the edge of the river, downstream from the falls. This was where our boat trip would depart, but not yet, of course. While we waited, we enjoyed the sight of many exotic and colourful butterflies. Then we were distributed over two boats and we set sail for the waterfalls which, incidentally, also served as the backdrop for the latest Indiana Jones movie.



Waterfalls are wet. They are also pretty loud. Waterfalls are also very wet. In fact, waterfalls are so wet that this fact is worth mentioning thrice. Waterfalls are white, but refraction of sunlight in the vapour creates beautiful rainbows. Also, waterfalls are very, very wet. And so were we, at the end of our boat trip. Not nearly as wet as a waterfall, but still quite wet. But the experience was well worth it.

After this adventure, we were released to roam freely around the park. Your reporter and his faithful companion had decided that they wanted to try to walk

all the trails in the park. They started with the closest one, around a small island amidst the waterfalls. In the forest on this island were birds and lizards, and the end of the trail offered a beautiful view of wet things that were not our soaked selves.

It seemed unlikely that your reporter and his faithful companion would be able to walk all the trails before the park would close, so they had to set priorities. Of one trail, the map said, "the most powerful waterfall experience, the culmination of any visit." However, what was that little pink dashed line that ran through the jungle, off the bottom edge of the map? The one that was significantly longer than the other trails, and not mentioned in any description? Your reporter and his faithful companion were intrigued, and the decision was quickly made.

The trail turned out to be a dirt path that cut straight through the jungle. Unlike the rest of the park, there were hardly any people. The number of other creatures, though, was much larger than elsewhere, and so were the creatures themselves. It was not long before your reporter and his faithful companion stood face to face with an enormous ant. They attempted to photograph it next to a € 50 banknote for scale, but by the time the camera was ready, the ant had reduced the money to a mere € 2. Although this coin was salvaged, it was shortly thereafter devoured by a spider even bigger than the ant. Broke and badly shaken, your reporter and his faithful companion continued their quest.



A wooden staircase down amidst the trees marked the end of the trail. At the end of the stairs was a small pool that was filled by a narrow waterfall of some ten metres high. Unaware of the temperature of the water, your reporter's faithful companion decided to take a shower. Needless to say it was a very short shower. Clean, cold and once again wet, your reporter's faithful companion joined your reporter for the journey back to the inhabited world. Little did they know that this trail had yet another surprise in stock for them.

They had hardly started on the way back when they ran into some other tourists. These were standing very still and looked at the treetops to one side of the path. The sounds that came from there were unmistakable: monkeys! A group of them were shouting at each other, looking for food, jumping from tree to tree, and generally having a good time. After watching these close cousins of theirs for a while, your reporter and his faithful companion decided that it was time to move on. Feeling ambivalent about the fact that they had not seen any jaguars or snakes, they reached the beginning of the trail and rejoined the group at the park exit.











# Daily reports Argentina





## Sunday, April 26

Gjalt Bearda



**S**unday “tick and run day” April 26th we left paradise (Hostel Paudimar Campestre, Foz do Iguazú) for Buenos Aires, the second large city on the schedule of our trip. Since our plane would leave at six in the morning most people went to bed early for a quick nap. Samuel, Geert and Hans remained near the pool sharing their experiences of the last eleven days with the four German girls we met yesterday. Meanwhile Rob, Maarten en I (Gjalt) watched the movie “Wedding Crashers”. The movie ended at three in the morning, just in time to pack our suitcases and to join the rest of the group to go to the airport.

We arrived at a dark and quiet airport. The sliding doors were open but there was no activity at all. Everyone looked around for a place to relax and extend the short rest of the short night. Minutes after our arrival the first crew walked in and so we opened our eyes again to check in. At 6AM the plane took off and we flew towards a beautiful sunrise.

A few hours later we landed at São Paulo International Airport for the second time. It was already 08:00, but there was still two and a half hours waiting ahead of us. “Make sure you are at the gate at 09:20!” shouted Tjitske, and we all left for our third breakfast of that morning. Our plane to Buenos Aires left on schedule at 10:20. This was our first flight of the trip at daytime above the clouds. Everywhere you looked through the small elliptical windows you saw clouds. But even this beautiful sight started to bore me after a few minutes. There was no personal television like on the transatlantic flights, instead a promotional film of Argentina was shown which was clearly made in the VHS-era. So we either enjoyed ourselves with music or we gave ourself some extra hours of sleep.



At the airport a touring bus was waiting to bring us to the place we would call “home” for the next two weeks. Venite a Casa Hostel in Palermo Hollywood is a beautiful hostel with every comfort you need: no curfew, a terrace, a cosy common room, hot showers and of course comfortable beds. For this day the only arrangement was at 8PM, so groups were formed to get some first glimpses of Buenos Aires.

Buenos Aires is in many ways a beautiful city to go to. It reminded me of Paris, Marseilles and Rome. There are only a few areas where there are tall (20+ storeys) buildings. The rest of the city blocks are full of French architectural 8-storey houses. No blocks of flats at all. Trees, so many trees that in every street you could think that a tree-bomb had exploded. And everywhere you looked were wrecked cars, bummed by collisions from times when they still drove, abandoned by their owners and now turning into rust.

I went with a small group to walk the streets of Central and South America; Costa Rica, Guatemala, Paraguay... We easily found our way because of the Manhattan-like street plan. So in a short time we found a beautiful park. With our snacks bought in a nearby supermarket, we seated ourself on a bench. Then it struck us.. this was not an ordinary park. No, not at all.... Everywhere we looked cats were walking, lying or begging for some food. Potato chips was a nice meal for the orange cat nearest to us. We were not the only ones enjoying the nice sunny Sunday afternoon. Students were discussing their subjects, kids were looking at the cats fighting over the food they had just thrown at the ground, and couples were enjoying themselves, ignoring the rest of the people in the park.

Completely relaxed by the last few days at the Iguazú Falls, we knew what was missing on this sunny day: a nice cold drink. Also time was running out so we walked in the direction of the hostel looking for



a local bar. Of course we found a nice location to sit down and enjoy our beer straight from the fridge.

At eight o'clock we all gathered for the dinner arranged by the committee. Just a two minutes walk from our hostel was a nice Argentinean restaurant. We ordered our menu 'a la carte' but for the first time we could not use the Portuguese words learned the last eleven days. This time the menu was in Spanish. So with the menu in one hand and a dictionary in the other, we ordered the meat for which Argentina is famous.

## Monday, April 27

*Sander Land*



**E**arly in the morning it was abundantly clear what many already suspected yesterday, that indeed  $4 \text{ (bathrooms)} < 27 \text{ (people)}$ . However, our very first Argentine breakfast was served earlier than expected, which helped a lot. The breakfast was well organized, with sweet bread rolls, cornflakes, coffee, tea and juice, although the bread rolls were way too sweet for some people. After a quick change to "business casual" clothing, we left around 10AM via metro to...

### Universidad del Cine

At the Universidad del Cine ("Cinema University") we were greeted by Luis Facelli, who talked a bit about the university.

Universidad del Cine is a private university started in 1991 with the aim of providing a broad education for students who want to go into the movie business. The university has about 1000 students, and there is no selection procedure as the 200-300 new students who enroll each year nicely matches the rate of students leaving. There are also about 40% foreign students, who are mostly from Latin America, but there are also some from Europe and Asia. Not many students go abroad, and those who do usually come back after a year or so. The university provides courses, not only in the technical aspects like editing, directing and cinematography, but also in philosophy, literature and art history, so as to give the students the necessary cultural background as well.

After the talk, Luis showed us the library of the university. Although relatively small, it has most of the books students need, as well as many VHS and DVD tapes of films. Afterwards, the group is split in two, with one group visiting the editing department, which mostly consists of a lot of Macintosh computers with Final Cut Pro, and one group visiting the university's very own film development room, which allows them to be independent and have more freedom in developing their 16mm films.

After the tour, we were led to their brand new movie theater, where we were treated to some short films made by students of the university. After a final round of questions, we received a DVD with some of these short films. Many of these films can also be found by searching for "Universidad del Cine" on YouTube, and more information about the Argentine movies can be found at <http://www.cinenacional.com>.

### Boskalis

After splitting up for lunch and regrouping, we walked to Boskalis, a company specialized in dredging, where we arrived around 3PM.

Guido van den Berg led us to a restaurant, where Paul Louer, director of the Uruguayan branch of the



company, gave a presentation about Boskalis. Even though he is old enough to retire, he is still active as director and very enthusiastically told us about the history of South America, the company, business practice in South America and many other things, for nearly two hours.

Boskalis started doing business in Argentina, dredging the Mar del Plata harbour, around 1970 when Paul Louer was still a captain. At that time Boskalis was far less specialized, consisting of many different companies, and there was very limited equipment for dredging. However, after financial difficulties Boskalis was nearly annihilated and reduced to a small company specialized in dredging. Over the years the company has had massive growth in that specialization, and is now back to the size of the original 1970's Boskalis.

Even though the government prefers to hire local companies for jobs like this, Boskalis has no problem getting jobs as there are very few competing companies within Argentina. However, getting paid was not always easy, and the financial problems that Argentina faced over the years also affected the company, which can be very risky if your ships cost several tens to hundreds of millions of dollars. The current financial crisis does not cause problems though, as Argentina has not been affected that much, and keeping harbours open for export is a major priority.

One of their most important more recent jobs was dredging the Martin Garcia channel near Buenos Aires from 1997-1999. As much as 57 million cubic meters was dredged there, so as to improve access to the harbour. Another project was the Rosario-Victoria river crossing, which involved a total of 12 km of bridges and 47 km of embankments.

After a few more questions, we left for the hostel around 5PM. On our way we stopped by the supermarket and scraped together something not entirely unlike dinner, then left for...



## Urban Biking

Around 8PM we arrived at Urban Biking.

The guides (including one Belgian) told us that the roads are dangerous and that we had to ride calmly and as a single column with a guide in front and one in the back. After choosing a bike, we split up into two groups, and after the guide figured out that the Dutch know how to bike, all warnings were pretty much ignored and were we in for a rough ride. Crossing up and down hills, sudden sharp turns, crossing a six lane road with 5 people next to each other while ignoring the red traffic light or zigzagging through traffic.

We regularly stopped at sights around the city where the guide told us some information about the city's history and customs, and also stopped for a choripan (bread with chorizo sausage) which nicely made up for the lack of dinner. Some of the sights we visited were Plaza de Mayo and the Puente de la Mujer (Woman's Bridge).

Three hours later we finished the biking with a race in the underground parking garage. Some of us went to a cafe afterwards for a drink, where we later met some people from the other group, who told similar stories about their awesome biking experience.



## Tuesday, April 28

*Jasper van Dijk*



We started today with the end of yesterday: having some drinks on the roof of the hostel till 3:30AM. We awoke the same day at 9AM to go to a museum. For breakfast we ate a couple of very sweat pieces of bread in the hostel. The day started good, Samuel had a hole in his pants and I had red spots on mine. Because a few people were late getting in the shower we had to wait quite a while. Standing there I had a talk with Professor Trentelman about Transgenative Resonance, which, at least according to Google, doesn't exist. According to Professor Trentelman this is the phenomenon of similar action taking place amongst different groups of people without a known connection. But soon the topic changed to coffee.

When we finally left, the subway was extremely crowded. Luckily the anticipation of the museum kept the group buzzing with joy. Sadly we arrived there only to find out that the museum was closed. So everyone went their separate ways.

I strolled around the city with a few people, when we were suddenly stopped by a female police officer. She told us we were in a very bad neighbourhood and that the gigantic camera my friend Gjalt was wearing around his neck was like a bomb waiting to go off there.

We put his camera in a plastic bag and quickly left for the neighbourhood la Boca. The police officer had recommended a nice little restaurant there, where her sister works. The place was called la Ribera del Tango and we had lunch there. We all ate Bife de Chorizo while enjoying a live tango show. After lunch we went with cabs to the Cemeterio de la Recoleta, a very impressive graveyard with the tomb of Evita Perron.



I sat in a cab with professor Trentelman, Gjalt and Auke. Because Trentelman and Gjalt wanted to watch a soccer match they went out earlier to visit a bar. When Auke and I arrived at the graveyard it was closed for maintenance. So we decided to just sit down in the park and enjoy the sun. When it almost got dark we returned to the hostel.

Fortunately a few participants did visit the Cemeterio de la Recoleta during opening hours. As soon as they walked in, it was clear at once that this was not an ordinary cemetery. One of the mayor sites, as pointed out by the sign near the entrance, was the tomb of Eva Perron, better known as Evita. Evita is still seen as the most influential woman of South America with her outspoken role as First Lady of Argentina during the time of Juan Perron. Since most visitors were only at the cemetery to see Evita's grave, the rest of the graveyard was almost deserted. That gave us the space and time to look at the enormous tombs, some were almost two-storey houses where an entire family could live. All made out of marble with impressive statues, the tombs were nothing but beautiful, and perhaps a bit scary.

That evening we visited Floor's house. Floor is student from Groningen that lives in Buenos Aires for half a year. With her we went out to get some empanadas, which were very good. After this dinner we returned to the hostel and this wraps it all up.





## Wednesday, April 29

Mark Abspoel

**S**cheduled for today was a visit to the faculty of exact sciences of Latin America's largest university, the Universidad de Buenos Aires (UBA). After some challenges for the organizing committee involving grabbing taxis for all 27 people, we managed to arrive at the faculty at 10AM. We were welcomed at the faculty building by lots of drawn posters portraying cows. We learned that the posters were put up by the students to honour our visit; the cows were of the Holando-Argentino breed, today found primarily in Argentina, originally stemming from the Netherlands.

First on the programme was a visit to the physics department. We were given an introductory talk about the department. The physics department is embedded within the Facultad de Ciencias Exactas y Naturales, which houses many different courses, even including Oceanography for example. The department consists of about 60 professors, each one teaching about 4 hours a week. The professors don't have tenure; they have to renew their position every 7 years. The faculty of exact sciences is itself one of the 13 faculties of the University of Buenos Aires. The university has no central campus, and offers free of charge education to currently about 300,000 students.

The course in physics takes six years, after which one obtains the degree of licenciatura, equivalent to the European M.Sc. degree. Before one can enter this course, one has to complete one common year, called the CBC, which focuses on both general academic skills and some basics concerning the chosen studies. Each year, about 100 new students enroll in the physics course. After the students obtain their degree, most will continue their academic career to obtain a Ph.D. degree. Of these, many will continue their studies at a foreign university (most notably in the U.S.).



After the introductory talk, the group was split and we were shown around the department. First stop was the image processing lab, where two Ph.D. students told us something about their research. One involved emulating quantum computing using some complicated setup of a laser, filters and lenses. It was quite interesting, but unfortunately yours truly didn't possess the needed basics in optics to fully understand what was going on. The other involved using a laser to align nanotubes, and using it as a detector. We traded places with the other group, and arrived at the low temperatures lab. Two professors showed us around the lab. They had equipment capable of producing temperatures as low as 1 Kelvin, and producing magnetic fields of as high as 9 Tesla. They also had their own plant for creating liquid helium. Cooling stuff to extremely low temperatures always allows for very fun demonstrations, the professors showed us how to cool down a piece of foam to 90 K, to have it levitate by magnetism.

Next, we sat in a lecture hall, waiting for the upcoming talk on the governance structure of the university, where we were offered a soothing sip of red wine. After a short time during which the students slowly trickled in, to completely fill the lecture hall. A student presented



us with the details of how the university is organized. He gave the presentation in Spanish, with someone else translating everything into English. This was done such to allow every student to understand the presentation – not every student spoke English.

Traditionally, the universities in Argentina were managed by the clergy. Increasing conflict between the universities' authorities and the students eventually culminated in the 1918 Córdoba university reform. The students had four demands: for the university to be autonomous, the equality of students and professors in electing the university government, the secularity of the education and that education was to be offered to anyone free of charge.

After this talk, the Argentinean students were educated on the Dutch system of education by one of our students, Jasper van Dijk. He was also accompanied by a translator, who translated Jasper's English to Spanish. Afterwards, there was the possibility to ask some questions. This almost doubled the length of the talk, for some student took the opportunity to start a discussion instead of asking a question.

Then, lunch in the cafeteria. We joined the queue for the food, which extended all the way across the cafeteria. After standing in line for about 20 minutes, everyone got their food and received a randomly coloured piece of paper featuring the familiar drawing of a cow. The colours matched balloons which were attached to each table. You had to sit at the table of your colour, as to encourage the mixing of our and their students. Soon enough, everyone was enjoying their food and engaged in conversation with each other.

Next up was a visit to el Instituto de Astronomía y Física del Espacio (IAFE), the astronomy department. There was a short introductory talk, of which the author of this report missed the most part, because he had left his notes for this report at his lunch table and had to go back to get it. After that, we were given the opportunity to chat with students of the Institute over some coffee and cookies. For those interested, there was also the possibility to get some more in-detail information about simulations they used.

This concluded the day's visit to the university, and after a lengthy, relaxing stroll along the ocean, everyone took taxis back to the hostel. Overall it was a pretty successful day. When asked to describe the day in various ways, people responded with 'cool', 'nice warm welcome', 'nice ambiance', 'silence is gold', 'a', 'Flying Spaghetti Monster' and 'water lily', of which the value can be disputed about. Nevertheless, everyone seemed to enjoy themselves. Yours truly definitely did, partly because he together with three others ended the day with a barbecue on the roof of our hostel, enjoying Argentinean meat while overlooking our neighbourhood of Buenos Aires.



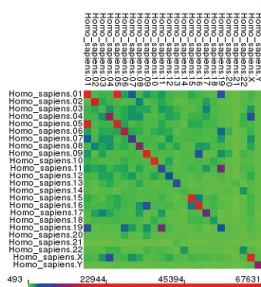
# Thursday, April 30

Maarten Kruijver



As usual, we woke up early in the morning, already tired of two exhausting weeks. This did not bother us at all, since we had a busy and exciting day ahead of us. This day was special, since it was a Dutch holiday (Queen's day) and everyone was excited for the party at the Dutch association in the evening. Rumors about croquette balls, Guus Meeuwis and free Heineken beer went around.

But first things first, so with our sleepy morning heads we got into the taxis for the second half of the two-day visit to the UBA, after which a visit to the Rabobank was planned. After an incredibly cheap taxi ride we arrived at the familiar campus of the UBA. Some persons recognized students from the previous day and tried to hook up later to dance tango or have some Chinese food. This day we visited the Departamento de Computación (Computer Science Department) of the Facultad de Ciencias Exactas y Naturales (Faculty of Exact Sciences).



Several research projects were presented. One of these is the project KAPOW (Knowledgeable Algorithms for Problems on Words). The research is about finding algorithms to identify patterns inside strings. One application of such algorithms is finding common patterns in human chromosomes. The figure shows a visualization of the results of an algorithm that searched for the longest common pattern present in pairs of human chromosomes. In the diagonal the longest pattern repeated inside a single chromosome is depicted. More can be read at <http://kapow.dc.uba.ar/>.

In the afternoon we took another taxi to another part of the city and visited an office of the Dutch Rabobank. The small office is located in a former upper class house which is richly decorated with marble and art, clearly indicating that it is not the usual retail bank branch office. The head of credit gave a presentation introducing the Argentinian business of Rabobank, which is – in contrary to the Dutch business – focused on merchant banking and has a relatively short history going back only to 1993. Whereas the Dutch bank offers the whole pack of services ranging from small mortgages to large IPOs, the Argentinian business consists solely of merchant banking. The most important client sectors are however the same as for the Dutch business: food and agriculture. Major clients are companies like ADM, Cargill and Louis Dreyfus.

The presentation at Rabobank covered some economical history of Argentina in general and Rabobank in particular, after which there was plenty of time for all kind of questions. Several interesting facts came across about the economical history of Argentina. Conditions are very favourable for agriculture; they say that whatever is dropped on the ground will grow! Thanks to these good conditions, the GDP of Argentina grew to half of that of whole South America during the fifties. Nevertheless, periods of economical prosperity have always been followed by deep crises. The most important cause of all misery is said to be bad policymaking and corruption. The country often had large budget deficits leading to a huge national debt causing severe problems in for example 2001.

Despite the problems, Argentina is a very big player in the world export markets for beef, wheat, corn and soy. Production in the country is so efficient that the government can afford it to tax the exports, hereby effectively counterfeiting the black economy. Exports are relatively easy to monitor for the tax department, while collecting income tax or VAT is hard in an economy that is largely driven by paper money. After several banking crises, Argentineans have such a distrust in banks that a lot of them do not even have a bank account.

After a quick dinner the group recombined to celebrate Queen's day with other Dutchies. The Dutch association had organized a party in a pub in the city. Sadly, the party was spoiled because a man drove his car at high speed into a parade in The Netherlands, which shocked everyone. A few hours and a few drinks later however, the party really got started not ending before the sun rised again.





## Friday, May 1

*Monique Ankoné*

**A**gain a beautiful day! Recovering from Queen's day (or should I say Queen's night), we were sitting in the bus ready for the next day. This day had nothing to do with presentations or lectures but with horses!

Leaving Buenos Aires behind, we arrived at the estancia, which is Spanish for the North American word 'ranch', one and a half hour later. Getting out of the busses, we had a warm welcome and were overloaded with snacks and drinks. After discovering the horses and exploring the ranch, they dressed us up. The 'Dia de Campo' could start now that everybody was ready for the horse riding. Even our professor Olaf Scholten, who seemed to be left with a safari cap instead of a horse cap.

The first thing we learned about riding a horse was how to go left and right, by pulling the rope respectively to the left and right. Then we learned that the horse moved if you make some "kiss-sounds" and that it stopped when you said something like "sssttt!". With those instructions, everyone got a horse and could climb on top of it, to practice the instructions we just learned. Surprisingly the horse reacted on those sounds and after everybody got knowledge of this 'horse-manual', we could start our first ride over the enormous meadows surrounding the ranch.



In the beginning, most of us were doubtful about the horse riding but that changed after a few minutes and from that point on, we all thought that we were like Indiana Jones. But that suddenly changed when the saddle of Mark's horse became loose and we all had to stop for a little while. Fixing the saddle, we galloped further over the meadows, while Rob and Cees rolled next to us in a carriage. Approaching the estancia after more than one hour of horse riding, we 'parked' our horses and we again were overwhelmed by snacks and drinks. Relaxing in the sun while

we were enjoying the empanadas that were handed out and due to the fact that our glasses were filled even when they were not yet empty, made us feel like we were members of the royal family. Eating the last empanadas, we sat down at the table. Here we got information about the body of a cow, before the barbecue started. They showed us proudly what parts of a cow are the best and told us that we could taste all the parts they just mentioned. Drinking some wine, beer or soda, we all tasted the different pieces of meat. The meat was indeed so good that even the vegetarians could not resist and tasted a bit of each piece. And if that was not enough, also the famous Argentinean dessert 'Dulce de Leche' was served.



Now, there was time for relaxing again. While we were relaxing in the sun and enjoying our drinks (or searching again for their glasses like Prof. Trentelman), they took care of the horses. Later in the afternoon it was time for the second ride. Even Rob was convinced this time that riding a horse is a lot of fun and therefore he joined the second time we went for a ride. Leaving Ceas behind in the swimming pool, we went a different route than the first time and this time everyone sat more convinced in their saddle. As the sun went down we wandered back to the ranch. Once we arrived, we took off our horse-ride clothes and it was time to say goodbye to those enormous nice people. After we gave them the Dutch cookies 'stroopwafels' and a photo of us as a thanks for this great day, they told us to write something in their logbook so that they would not forget us. We wrote something in their logbook while we were enjoying the Argentinean tea "maté" and after this we got on the bus ready to go back to our hostel in Buenos Aires.

As you can see, it was a great day! The following days most of us thought back to this day, while enjoying their muscular pain!

## Saturday, May 2

Harry Trentelman



### Surprise adventure

According to the programme, on day 18 of the excursion there would be a surprise adventure. Being a surprise, no details were presented in the programme booklet. Some of the participants already made guesses in advance about the destination of this day, and some of these guesses actually turned out to be correct: day 18 would bring us to a famous touristic site, the small town of Colónia del Sacramento in Uruguay.

Around seven o'clock in the morning we took taxis to bring us to the fast hydrofoil ferry boat "Colónia Express" in the harbour of Buenos Aires. Some of us arrived late at the ferry terminal: one of the taxis had a flat tire, and the passengers had to change taxis. Fortunately, everybody arrived in time for the customs formalities to leave Argentina and enter into Uruguay. At nine o'clock in the morning the Colónia Express left the harbour of Buenos Aires, and about fifty minutes later it arrived in Colónia del Sacramento.

Colónia del Sacramento was founded in 1680 by Portuguese settlers that named it Colónia do Sacramento. It is now a city in southwestern Uruguay, situated by the Rio de la Plata, and facing Buenos Aires. It is the oldest town in Uruguay and has a population of about 22,000. Colónia is renowned for its historic quarter, the Barrio Histórico, which is on the UNESCO list of World Heritage Sites.

After our arrival in Colónia, we splitted up and started a day of sightseeing. Most of us walked around the historic center, enjoying the pitoresque, cobblestoned little streets, the Portón de Campo (the City Gate), and the beautiful white lighthouse. The weather was excellent, and many of us enjoyed sitting in the sun on one of the many terrasses in the historic center, or drinking a beer along the shore of Rio de la Plata.

Around five in the afternoon we returned, again by hydrofoil. At six, around sunset, we arrived in the harbour of Buenos Aires, where we picked up taxis to return to our hostel in the Palermo quarter.







## Sunny day, May 3

Roel Tempelaar



The day kicked off around 8:30AM when Femke's voice brought the participants to Argentinean reality. As it turned out, the poor girl didn't get a second of sleep, kept awake by the Buenos Aires nightlife scene. Luckily enough for her, the program of today consisted of chilling at the Tigre Delta.

After everyone's daily overdose of breakfast sucrose and the never-ending shower hunt, we found two busses waiting for us. One of the bus drivers had so much faith in her dog, that she even let the creature drive the bus through the heavy traffic of Buenos Aires.

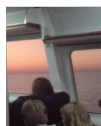
We were dropped close to a roller coaster park. Instead of an exciting roller coaster ride, we had an even more-exciting boat trip across the brown muddy river, to a nice park somewhere in the Delta. The park consisted of a green surrounded by the water. A volleyball playground, a barbeque and a bar were included, so everyone was satisfied. A stereo blaster was casting hits of UB40, Manu Chao, ACDC, Led Zeppelin and others.

As the sun was shining, we gathered some seats and settled down to collect as much solar energy as possible. After a while, the first volleyball activity was observed. Others decided to enrich the ambiance by starting a party of "klaverjas". In the mean time, the local supervisors started their barbeque business. Soon, they invited us to have the results of their efforts for lunch. So we had our daily meat intake, this time accompanied by a significant deal of benzene rings. It was around noon when some of us started their drinking.

In the afternoon we were invited to join for a kayak boat ride across the muddy river. According to the kayaks' capacity, we were divided into groups of two. I had the pleasure of being in a group with Morten "Brute Force" Bakker. It was my task to tone down his peddling power in order to maintain the moderate velocity allowed by the kayak group leader. Halfway the ride, a boat race was set up. Despite my loathsome steering quality, Morten succeeded to beat all the others with a two-boat length difference.

At our return, we found our group mates performing capoeira, showing the moves that are characteristic for this fight-dance. Completely other moves were performed by a selection of those who spend the afternoon continuing their drinking. After they managed to board the boat, we left on the trip back, across the muddy water again.

We were about to end the day at the local fruit market. Since I had too much of benzene during lunch, having fruit seemed pretty attractive to me. Too bad, over the last couple of decades, the fruit on the market has been substituted for souvenirs like maté cups. Without losing track of some drunk participants, we gathered together after which the two busses and the dog brought us back to the hostel.





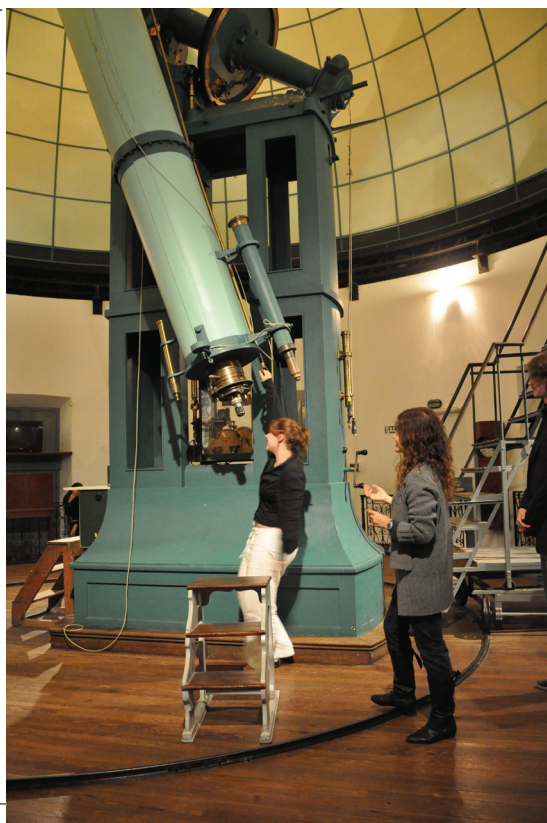
## Monday, May 4

*Erik Disterwinkel*



**S**outh-east of Buenos Aires, 100 kilometres from our hostel lies the city of La Plata. At 8.15AM we left with the bus to the physics department of the university of La Plata. Facing a statue of Dr. Emil H. Bose we were welcomed and taken to the Museo de Física. We got a short talk about this department and what importance this department had for the establishment of the university. More interesting was the big amount of instruments used in physics which we could see: the simple ones like a current measurement device and the more complex instruments like a Van-der-Graaff generator. Also a lot of instruments which were used for teaching purposes, for example an optical ray tracing setup and an high voltage setup with fluorescent lights to see conductivity. In an experiment Rob was exposed to the law of conservation of angular momentum using a chair.

After the museum we went to a lecture-room to listen to professors working in different fields of physics. The physics department had 50 researchers and approximately another 50 junior researchers. It was in the ancient lecture-room, with very nice wooden furniture, where a professor of the experimental condensed matter physics group told us about their research. He also explained a little bit about the research they did together with some groups in Europe into magneto-hydro-cells. The second professor, of the theoretical nuclear physics group, told us about neutrinos and the relation between nuclear-particle- and astrophysics just before a discussion began between the nuclear physicist and the particle physicist about which research was more important. After that a female professor of the high energy physics group told us something about the Auger project and the project at CERN about Atlas. It took 5 minutes of talking to the group before she recognised Olaf as an physicist she had met before. Also a professor of mathematical physics told us in short about (quantum) field theory and showed us how to get to the Riemann-Zeta function. His idol was Gerard 't Hooft.



After three hours of having lunch at a bar-restaurant we were heading of to the Natural Science Museum which, when we arrived, seemed to be closed that day. Before going to the observatory and the astrophysics department we were free to explore the city of La Plata on our own. Some were walking to a park, some were seeing the cathedral and others were having a beer in a small park in the city center.

27 people gathered again in front of the observatory to be guided through the observatory by the beautiful lady Daniela. Her talk in the library, where very ancient books in different languages and a beautiful stained glass artwork could be seen, was breathtaking. She told about La Plata and the time this observatory was established, 100 years ago. The goal of this observatory was to retrieve the coordinates of where La Plata is located. The plan was to build 50 of these observatories in the country to locate all these points on the map, but they never came that far. The observatory also owns a first edition copy of Newtons famous book "Philosophiæ Naturalis Principia Mathematica", it is not shown to public but kept safe in a vault which can only be opened using seven different keys. There is a total of 5 telescopes for research and educational purposes at this place. Daniela took us for a walk along the telescopes. She showed one telescope of which the only task was to look 24 hours



a day at a star called Eta-Carinae which is a good candidate to turn into a supernova. It does seem a little strange, waiting for a star to explode, but it surely would give nice data when the star explodes. We were taken to the 100 years old telescope which was still in use 17 years ago. The impressive one ton weighing telescope was pointed towards the sky, too bad we planned visiting this observatory on the only clouded day in Argentina during our stay. On the other hand, now Daniela could show us very charmingly all instruments used to move the dome and the telescope. And one floor down there were instruments like a heliograph, mechanical calculator, quadripendular and a lot more interesting instruments.

In the end it was a very interesting day in which we learned a lot about the university and the observatory and saw a lot of La Plata itself.



## Tuesday, May 5

*Harm Jan Prins*



On day 21 there was a change in the program. Instead of going to SI-6 we went to the nuclear site Atucha of the NA-SA, what originally was planned for day 14. The NA-SA (Nucleoelectrica Argentina SA) was set up in 1994 to take over the nuclear plant of Atucha from the CNEA (Comision de Nacional Energia Atomica) and to finish the building of the other reactor.

Around half past ten we arrived at Atucha. We gathered in a room where we got a talk about Atucha in general. This presentation was about the site itself, about the two reactors, about the role that nuclear energy plays in Argentina and about future plans and developments. At Atucha there are two reactors, but one of these is not yet finished.

Atucha I was finished in 1974 and the building of Atucha II was started in 1979. Reactor I was the first reactor build in South America ever. The realization of the second reactor was a bit delayed. They think it will be operational in 2010. This 20 years of delay (they restarted the building in 2005) is due to some changes in the political strategies concerning public facilities like electricity plans. In the eighties politics wanted to privatize all the public facilities, though NA-SA is not privatized yet.

The reactor is an uranium reactor. It is working with slightly enriched uranium which has to be imported from other countries. The reactor can be reloaded during operation. Each bar contains 156 kg uranium and has to be replaced about every 36 hours.

For the cooling of the reactor they make use of a river passing nearby. When the water, after using it for cooling, is released again in the river the temperature of it is only about 8 °C higher than the temperature of the water in the river. The temperature of the water in the turbine is about 300 °C. In his presentation our lecturer mentioned the 'safety culture' and why we do not have to be afraid for problems with these reactors like the disaster in Chernobyl.

After the presentations we got a guided tour through the building next to Atucha I. The security wanted to make a photo of each of us before we could enter. This interesting tour gave us the opportunity to see, among others, the axis of the turbine rotating and the control room of the reactor. The scale of the buildings and the engines was very impressive. Fifty people are working to control the machinery of the reactor. They are divided in three different systems, all working independent of each other. The safety system is not controlled by humans, it is fully automatic.

After visiting the buildings belonging to Atucha I, for obvious reasons we did not visit the reactor itself, we went to the reactor under construction: Atucha II. Before we were allowed to see the building site we had to change our shoes for steel-capped shoes. We also had to wear, as was the case in Atucha I, helmets for safety reasons.

Before we went to the building site we visited a building next to it where a model had been made of the reactor. The whole building with all its engines, pipes and constructions was made in a three dimensional model with a scale of 1:25. Making a model nowadays be done on a computer, but because they started to build this reactor in 1979, they had to make a model by hand.

After seeing this model we went to the building site and had the great opportunity to be inside a nuclear reactor. The bigger part of the construction already had been build. The two spheres of concrete were already build and we were allowed to go inside. The building of this reactor is a very big project. 5400 people are working on Atucha II, and most of these people live in Buenos Aires and have to travel each day four hours in total to be on the building site.

After visiting the building site of Atucha II we went for a big lunch and then went back to Buenos Aires and the hostel. In the evening we had tango lessons and after that a tango show. For the woman who gave the lessons it was quite an experience to have a group with (far) more men than women to teach. A part of the men had to play the role of women to be able to dance in pairs. These men learned both the man and the woman part. Though the tango abilities of most of the participants were not that good, it was fun and a nice introduction to the show which followed. The show itself was quite nice and an interesting expression of the culture of Argentina. After this show, at the end of the day, quite a lot of people went dancing and drinking in a local disco, showing their abilities to dance (but not the tango).







## Wednesday, May 6

*Olaf Scholten*



### Visit to the Dutch Embassy and CNEA

After breakfast where we enjoyed again some of the overly delicious sweet rolls, of which Harm-Jan experimentally determined that these were day by day getting less tasty, we went to the Dutch embassy by taxi. The embassy is housed in the upper two floors of a new 4-floor building in the renovated harbour area where also other Dutch companies, such as Boskalis, are housed. We were received very friendly with real Dutch coffee by the head of the department for economical affairs. Soon the deputy ambassador, Gerry Willems, formally welcomed us at the embassy after which we received a presentation on the function of the embassy and on the state of the Argentine economy.

After a lunch break of one hour the whole group left with taxis searching for the place of our next visit, the complex of the 'National Atomic Energy Agency' where also the TANDAR institute is located. Not every driver was equally good in finding this large complex and one taxi took more than 1:30 to find the place. The trip costed the enormous amount of 90 pesos (equivalent to 18 euros).

At the TANDAR (Tandem Argentina) laboratory we were shown the accelerator with an extensive and clear explanation by Professor Guillermo Marti on the principle of the tandem accelerator. At the top of a high tower the ion source is situated which produces negatively charged ions of the isotope that the experimentalist has requested for his/her experiment which will be described later. This ion is electrostatically accelerated towards a positively charged terminal at half height in the tower. This terminal is charged by means of a large chain to a voltage of V MV(maximally 17 MV). After the negatively charged ions are stripped of most of their electrons by letting them shoot through a thin foil they now have a charge of  $+q$ . They are now being repelled by the large voltage on the terminal to be further accelerated to their final energy equal to about  $(q+1)V$  MeV. At the bottom of the tower, at ground level, the particles are bend in a big magnet and are directed towards the experimental setup. From the source till the experiment the particles are flying through vacuum ( $10^{-7}$  bar) in a beam pipe. Two experiments were explained to us where in general the high energy particles are scattered from target nuclei (a very thin foil). In one experiment interference is studied between the scattering due to the Coulomb force and the strong interaction by measuring the scattering cross section as function of energy of the incoming ion.

During the visit we could also get a nice cup of coffee which was very welcome after the long taxi ride. As the next part of the visit we went to another wing of the building to the lab of Alberto Etchegoyen.

The complex has an impressive collection of modern art hanging every other meter on the walls of the long corridors we had to pass through. We were shown the lab where the muon detectors are being developed which are part of the AMIGA project. AMIGA is meant to extend the detection capability of the Pierre Auger observatory such that with good precision the number of muons can be determined in an extensive air shower. This will give a sensitive measure of the isotopic composition of high-energy cosmic rays. The detectors are build from strips of scintillator material which are read out through light fibers. The detectors will operate at a depth of 1 or 2 meters below ground in order to make sure that only muons will be able to reach them.

In the evening we went with the complete group to a very good Italian restaurant within walking distance from the hostel. Afterwards we were invited by the people from the hostel for some typical Argentinean drinks such as Ganicia (some kind of wodka, Lime juice, and suger, quite nice), Sangria, and a mixture of cola and some kind of Jaegemeister (undrinkable according to most of us including Mara and Hernán, the hostel owners). In between some of us enjoyed games on the new WII.

In spite of the lost taxidrivens this was a very pleasant last complete day in Argentina.



## Thursday and Friday, May 7 and 8

Rob Bremer

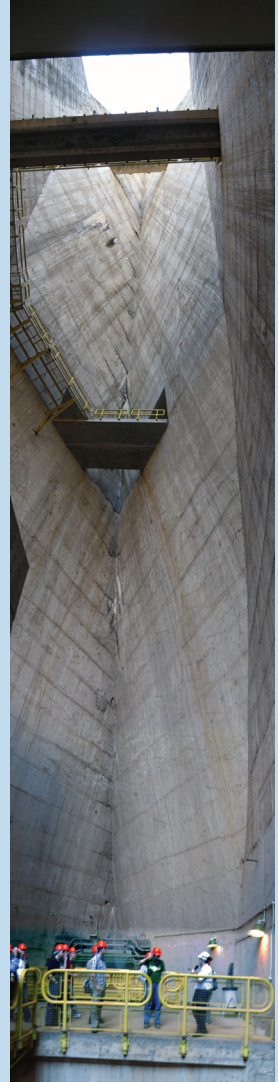
### The journey back

Everyone is tired from all the big impressions of South America. Today is the last time waking up in one of the most beautiful cities of the world. We will all miss Buenos Aires, that's for sure. All the nice pubs, terraces, clubs, culture and all the kind people we have met. The program for today is pretty straightforward and boring: getting up, taking a shower, packing our luggage and getting on the bus heading for the airport. But before taking the bus, all the leftover pesos have to be spent. That will be done during a last time visit to the city. After three weeks of traveling through South America, nothing could go wrong for us anymore, like being attacked by homeless people with fake knives. Looking for souvenirs, cheap CDs, cheap clothing we finally end up in a Marco Polo shop, where some of us spend all their remaining pesos, US dollars and euros on just one expensive polo shirt. And with our wallets empty we are ready to go back to Europe.

And so it happens, that we get to Frankfurt Airport without any trouble. Back in Frankfurt after a flight of more than 12 hours we have a big appetite. And because we are in Frankfurt one of the most obvious choices is to take a big Frankfurter würst with French fries. This meat can in no way compete with the most delicious meat on earth from Argentina. After all the delicious meat in Argentina, this is our first step to kick the habit. After making the most of our dinner, we are glad to take the train home. Tired, but excited to tell all our exciting stories to our family and friends.











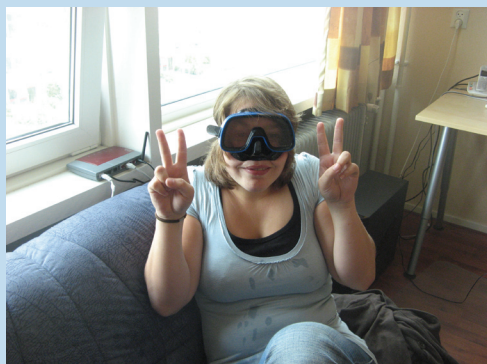




# Organization











## From the chairman

*Tjitske Starkenburg*

**W**hat are the first things that enter my mind when I think of the year we spend on organizing the excursion? Frustration and stress, hard work, difficult decisions, but also joy, eagerness, and most of all excitement over what we were achieving. In all contacts abroad, in reading the travel guides and writing about the countries and cultures for our own 'survival guide' we could already enjoy in the trip beforehand. But how did it all start? And how did I end up here, trying to write some lines about my experiences as member of the organizing committee? Well, I do not remember the time when I started to think about applying for the committee, but do I remember brooding on it for some time, maybe for a month. I am not sure whether I would have applied if I had not also been asked, but in the end I prepared for spending a lot of time on one committee for the two coming years and applied. The first month in the committee is the most relaxed one I guess. You have to pick a destination, a name, a logo, have to start making an estimate of finances, building a website, and do many other things, but that is nothing compared with what comes next. Besides, exploring and discussing on different countries, names and institutes is a lot of fun to do. While discussing you 'll dream yourself, your committee and 22 other people across the whole world.

But then you've picked your destination and the real task begins. In trying to get contacts at universities and institutes in Latin America we had the advantage that our university had just made an official visit to three of the universities we wanted to visit. Thanks to Joyce Fongers from the International Office of the University of Groningen we could get in contact. We also are very grateful to Amina Helmi and Mariano Mendez from the Kapteyn Astronomical Institute of the University of Groningen. They asked many people at different institutes in Brazil and Argentina whether we could visit, and brought us in contact.

There were a few highlights on the way while the program developed that I would like to mention. For example, we early on had decided that we wanted to try to do a favela tour. Favelas are part of the Brazilian daily life and to get a good insight in what is going on there would be very new, and I think also very valuable, for our participants. But to find an organization which could safely guide us was not so easy. We could find reports and websites of such organizations in Rio but not in São Paulo. Luckily indirectly we got in contact with Jos Schoenmaker who organized a visit for us at two local organizations and the visit ended up to be one of the best days of the trip. For all kind of organization problems with the program in Brazil we got great help from Vera and Maria from UNIFESP, and in Buenos Aires Mara and Hernan helped us with all our questions and problems. We are very grateful to these four people!

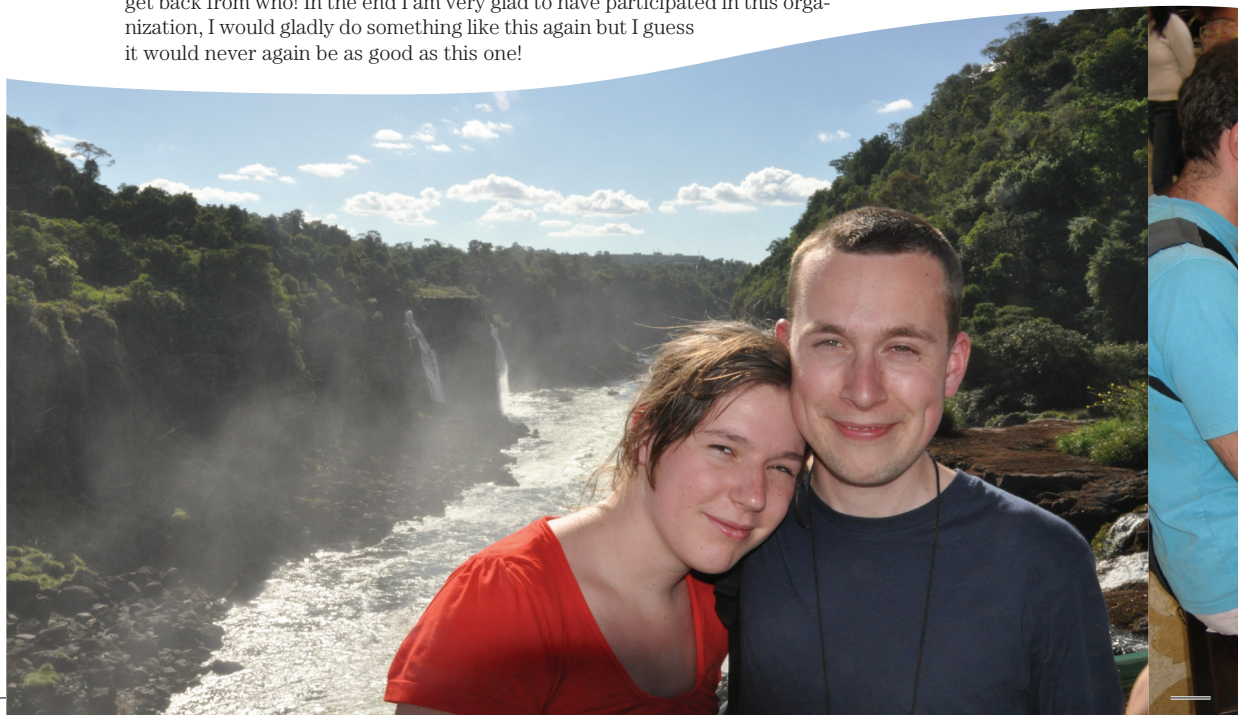


On the trip itself I was very focused at first to make sure that everything went smooth and that we were on time at our appointments. As I surely would not be able to keep this up for the full 22 days, and as it would be no fun for the participants, my committee and myself, I tried to loosen up and just let things go as they did. That worked out to be much easier then I expected. I really learned that if you just let things go, they do not always go as wrong as they seemed to be going beforehand.

During the trip we ended up to travel a lot by taxi instead of public transport, which was fun to do. We planned to only go by taxi in Buenos Aires, but as the busses in São Paulo turned out to be really crowded we took taxis there too. This seen now is very funny because we had to gather seven taxis in a few minutes, make sure that everyone knew where to go and make sure that everyone had money to pay the taxi or got it back from us later. I think many taxidrivrs where amazed that just two people needed seven taxis at the same time.

Though it was sometimes difficult to get everyone together at departure times each morning I think all did a very good job, especially if you consider the demanding schedule we had for three weeks. The busy schedule made me really enjoy the days on which we planned relaxing or cultural activities. At the estancia, the Tigre delta, the beach of Guarujá, and of course at the Iguazú Falls it was great to just walk around and relax but for me it was almost better to see everyone else really enjoy the day. On those days we had not only a great group of people, that was always the case, but we had a great group of people who had a lot of fun together; it was a group instead of a bunch of individuals who just happened to visit the same place. I won't go into how wonderful it was in São Paulo as well as in Buenos Aires, that should already be too clear when you read this final report. But, just as the others, I would love to go there again!

While getting enough casestudies did not go as quick as it seemed to go on other GBEs, Cees, Samuel and Ester did not give in and I am very proud of them because in the end we got every one participant a project. And Ester and Samuel also got a great program for us in South America! I am also very proud of Pjotr, at the start we thought we had to spare money wherever we could because the flight would be almost too expensive for our budget. Pjotr was very good in getting the rest of the budget divided as tight as possible. And during the trip he kept track of every change in money, even when we went with taxis and we gave one person in every taxi enough money to pay, Pjotr knew who he had given money and made sure that he knew how much there was payed to each taxidriver and how much he should get back from who! In the end I am very glad to have participated in this organization, I would gladly do something like this again but I guess it would never again be as good as this one!







## From the treasurer

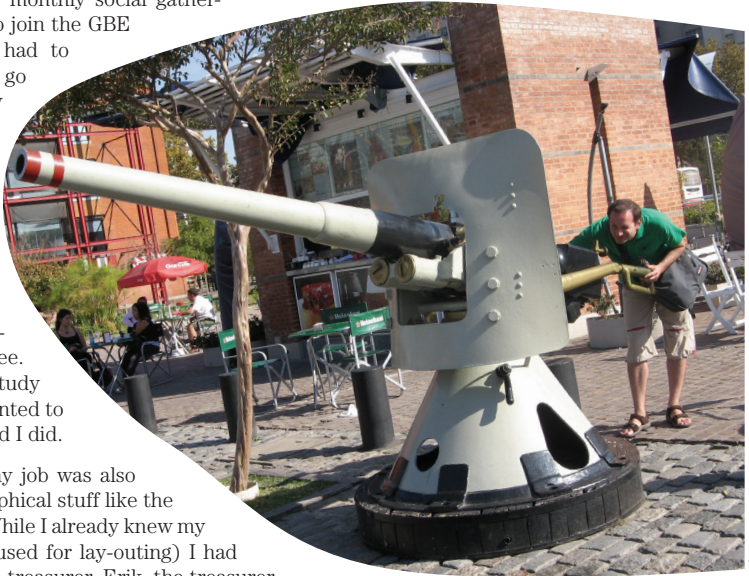
*Pjotr Svetachov*

When I was at the FMF monthly social gathering Femke asked me to join the GBE committee. I knew I had to think it over. I always wanted to go with the GBE to another country but never did. I was too young for the first GBE and at the time of the second GBE I had a very important subject at the university I needed to do. This time it was different, I didn't have many subject left before I could graduate so after thinking it over a few days I made the decision to join the GBE committee. I knew this would prolong my study at the university, but I always wanted to travel. So I said yes, and I am glad I did.

Apart from being a treasurer, my job was also to make the website and any graphical stuff like the logo and lay-outing this report. While I already knew my way around InDesign (the tool used for lay-outing) I had absolutely no experience being a treasurer. Erik, the treasurer from the last excursion told me what needed to be done. At the beginning I had to do little things like sending letters to organizations asking for subsidies. I also needed to

make an estimate for the trip. The most important aspect for this were the prices for the airline tickets. Travelling to South America is expensive but the price fluctuates a lot. And more important, we wanted to visit the Iguazú Falls, this meant an extra trip. The airline companies you take or the day you travel can make a big difference. I remember mailing, calling and re-calling the company that helped us with booking the tickets. It took some time but at the end we got us a very tricky flight schedule that started and ended in Frankfurt and had 5 stops in between. This was the moment we realized that the trip could actually happen. We could visit both São Paulo, Buenos Aires and Iguazú Falls in one trip!

Already in August we made our deposit for the tickets, our first big payment. From this moment we also started to get more serious. My work suddenly got exiting. I had to make all kind of payments, most of them abroad. It appears that most companies in South America only accept payments with Western Union. This is something I have never used and it was fun to use it. Because I learned a lot of new things as time progressed the work felt really rewarding. Of course it can also be a bit stressful; not knowing why the other end did not receive your payment yet or trying to get all the







money together before the trip takes place. All in all it went well.

But this was before the trip. On the trip self being a treasurer is even more exciting. I still remember going into the first bank in São Paulo. That place is like Fort Knox. From the outside it is all steel bars and from the inside... well you first need to get inside. Most of the banks have a little door where you need to go through before you get in. You need to leave your bag outside the bank but luckily there are special safeboxes outside. After you strip yourself of all your possessions and exchange them for a key you are ready to move inside. You go through a door, which is a metal detector.

Once inside you get greeted by security guards wearing bullet-proof vest, shotguns and other deadly looking weapons. On the first day we had to visit 3 of those banks before arriving at a bank that accepted our cards.

Getting money from ATM machines was also an adventure on it's own. You can only take a little amount of money from the machines at once, in Argentina this is around 70 euro's. But you can use the machine more than once and keep getting money till the limit of your own bank kicks in, which is also pretty low for a trip this size. So every morning me and Tjitske (and sometimes another person for protection) woke up early to go to the bank to withdraw money and getting booed at by the big line of angry people that started to form behind us. The machines are also not very stable there, sometimes they just give you back your card without any money. That was scary at first because you do not know if there is any money withdrawn from your account. But of course at the end everything went well.



And that is where we are right now, at the end. Everyone, including myself enjoyed the trip. We got to do a lot of fun things, like visiting the big Itaipú Dam, a big nuclear power plant still in construction, the slums of São Paulo, taking a ride with a boat through the Iguazú Falls, dancing tango, horse riding and much more. It's too bad the trip is over already, South America has too much to offer to see in 3 weeks. But I already know this: I want to (and once I will) visit South America again.





## From the commissioner of business relations

*Cees Draaijer*

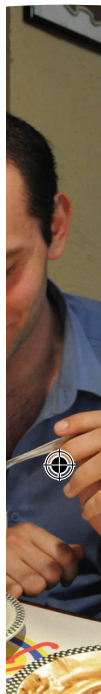
**W**hen the commissioner for business relations achieved his mission, all of a sudden, he looks out from a Boeing 777 onto scenes he deems not inappropriate for a James Bond movie. About a hundred yards from the airports runway, shacks stand very closely together, separated by little streets filled with unwealthy means of life. Up until then he was unfamiliar with any such display. Only being used to typical Western European affairs, he had a complete culture shock. Of course his story should start a little before this.

In the second quarter of the academic year 2007-2008 René Kist asked me to apply for the committee of the GBE of 2009. Of course I felt very honoured, so after we had dinner and our incredible destination was selected, work really started for me as commissioner for business relations. As I already had a little experience in contacting companies, at first the work seemed straightforward to me. Though above that it turned out to be a time consuming search for high potentials' odd jobs it was very challenging in times of an economic crisis.

In total I contacted 75 companies, participated in 281 e-mail conversations containing "casestudy", traveled around, and phoned some companies over ten times. All of this had to be done at times convenient for the external contacts, so combined with a year as president of the FMF, I had an incredibly busy year. Luckily, thinking of the upcoming trip always motivated me greatly.

The absolute highlights of my work itself were visits I paid to sell our casestudies. Suited with my FMF-tie and equipped with the 'casestudy brochure' and the 'Orange Tigers final report', I went by bike or by train to achieve my goal. Especially while traveling in the Randstad I found it very amusing to be one of the important looking guys.

The last two months preceding our departure luckily my job also involved arranging some things directly related to the excursion. Creating the preliminary study of Buenos Aires in the program really made me anxious to get to this historically







rich South American metropolis. When we drove from the Ezeiza airport to our hostel, and most of us were asleep, I was actually restlessly looking around at what the real Buenos Aires had to offer.

During our trip I looked forward to what any of our next excursions would turn out to be, because I learned that our hosts would keep amazing me. This might be because the world is big and I had been looking the other way, but it's better to say that we met a unique collection of inspiring and interesting people. Especially at Boskalis I learned a lot from Paul Louer about operating in a world unlike the Netherlands.

This contributed a lot to what I was enjoying the most of our excursion: walking the streets in South America, just like all the people who are probably doing it right now. My great gratitude in this respect I would like to give to Floor, who kindly gave Jelle and me a very good impression of Buenos Aires. We just walked around, looked around, in a proper Latin American flow.







## From the commissioner of business and foreign relations

*Samuel Hoekman Turkesteen*

I have fallen in love. I feel that is the best way to describe the three weeks we had in São Paulo and Buenos Aires. Maybe it is a bit hasty to say that I have fallen in love since we have only visited small parts of it, but somehow it feels familiar. A longing to return there haunts me ever since I set foot again in Europe. Organizing the GBE together with Ester, Pjotr, Tjitske and Cees to Brazil and Argentina was one of the greatest things I have ever done and I am very thankful that I had this opportunity even though organizing it was not always that easy.

What is there not to love about São Paulo or Buenos Aires? The people we have met were all so kind hearted, friendly and pretty, the languages are so melodious and beautiful to listen to, the country sides are so different and so astonishingly amazing, the cities are charmingly roaring and the food is very good. The things we have done and seen are too much in number to tell here. Besides, it is hoped that with this booklet we will give the reader (more than) a glance of what we have done in South America. So I would like to share with you some of the happy moments I have had. While writing I found out that I have way too many good memories to write down.

The first impression I had of São Paulo was formed in the bus drive from the airport Guarulhos to the crossing of Rua Oscar Freire with Avenida Rebouças. We were driving on a very busy six way highway and I was talking to Vera about some TIM Brasil phone card that I had not bought and how excited I was being in Brazil. I saw the landscapes passing by: favelas, green trees, water (some kind of large drain of São Paulo) and finally the buildings of the city.

After arriving and settling in the cute purple hostel, Tjitske, Pjotr and myself went out to withdraw enough money to make the first payments. We ended up at a nearby bank. The banks in São Paulo are like fortresses. They are fortified and there is surely no lack of security. The Santander Banco we entered had a carrousel door which only worked if you were checked or if you could leave your personal belongings somewhere outside the actual bank. Since we did not know how this worked I stayed outside with our bags and Tjitske and Pjotr went inside. After a minute or three, two security men sharp as a knife appeared. Thirty seconds later another security guy came in with a really large shotgun and he took position right next to me. I was stunned. Needless to say nothing happened, not even a withdrawal of money.

The next day we had planned a day visit to the IAG in the Cidade Universitária and it was my task as day leader to get everyone there in time. Our first intention was to take the bus and with maps we had planned the logistics ahead. However, we did not counted on the fact that busses are extremely crowded. So after missing the first bus and concluding that the second bus could not take us there, I got really worried about the hectic situation. After a small consult with the committee we decided to take taxis. In my best Portuguese (which is Spanish-English) I fixed seven cabs with a correct des-





tionation while Ester kept the people standby to get in the cabs. I remember my talk with Monique and Harry in the last cab to the IAG. I told them about my anxiety a few minutes earlier and I calmed down... only to find us driving into a favela near the Cidade Universitária area.

A few days later, around nine PM, I spoke with Jos Schoenmaker on the phone about the visit to the favelas we had planned for the next day. We talked for some time about our stay in São Paulo and to check if everything was in order for our visit. It was very nice to talk to Jos, he is a very kind hearted and friendly man. The next day he picked us up at our hostel. He told us about the history of the favelas we were about to visit. You must know that the favelas are actually highly organized and are striving for improvement of living. The ambiance was warm at the main building of the associação Casa Branca and after hearing great stories about and seeing photographs of the history of the entire project we were surprised by Brazilian songs about São Paulo and the project. Jos guided them on a guitar and the people of Casa Branca were singing along. The mood was set. After this it was

time to walk through the favela to meet some of the people. I think the people there are doing a wonderful job and I am amazed about what they have achieved and are still achieving. In the second part of our tour we went to the favela in the Sta. Inês neighbourhood and were welcomed at some kind of school. After lunch we went for a walk through the favela. After the walk we returned to the school for one last surprise... Jos had arranged that the local capoeira school would give us a little capoeira show. Actually, we had planned for a capoeira lesson the day before but it was cancelled. I told this to Jos on the phone and he took up the idea of a capoeira show! For me this was one of the highlights of our stay in South America. At the end of the day we all partied and were making music on the guitar, berimbaus and other instruments. With a hug, a tear and a memory to last I said goodbye to Jos.

On the crossing of the Rua Girassol with the Rua Inácio Pereira da Rocha (hard to find with Google maps!), near a gas station there is a small and authentic Salsa bar called 'Pau Brasil'. Together with my friends, I spent the last two nights there learning how to dance salsa and talking with Brazilians about "saudade", a feeling you have when you desire something or someone which or who is missing. That is how I ended my last day in São Paulo.

One of my best nights I had in Foz do Iguaçu was with the four German girls some of the group had met earlier: Tanja, Anja, Ulrike and Evelyn. We were having beers and really nice conversations in German by the pool of the hostel all night long. Please keep in mind that we had to be ready to leave Foz do Iguaçu at 3AM to be on the plane to Buenos Aires. So at a quarter to three Anja and I thought it was a good time to say goodbye. We hugged and said goodbye.

So we arrived in Buenos Aires and I must say, Argentines do not break a sweat. I must praise the Argentines for the way they can arrange things, such as a visit to a university or a change of number of people for a tango show, with ease. I am an outsider of course, but can they form an interesting program while it is busy running! I admire this inability to stress out, since I miss this ability. But if this was the case for our entire program we would not have survived it.

The contact with the owners of the hostel 'Venite a Casa', Mara and Hernán was great from the first e-mail. I looked it up. It was the first, but certainly not the last, time I noticed how warm and social Argentines are. They gave me lots of advice and helped me a lot with the organization of our program

in Buenos Aires. The people from the hostel are very kind and have a special place in my heart. In the hostel I met José. José is the housekeeper of the hostel. And although my Spanish is not the best and he cannot speak English, we could get along very well! He helped me out numerous times arranging taxis or with the laundry. Anyway, I always carry with me two coins of fifty centavos. They remind me of the goodness of Argentines and of José in particular. One morning (I think on the morning we went to the Atucha) I bought a large bottle of water in hostel and I paid to

José. I can not remember what the price was but I paid too much and he could not give me the change. I told him that it was ok. I had to go. That afternoon when we all had returned to the hostel, he came up to me and gave me these two coins. He smiled and told me that he would give me the change. I will never forget the honesty and happiness on his face when he gave me the change.



Of course I must ask myself, what have I learned from all of this? What can we all learn from this? One thing is for sure: it is not easy to organize an excursion for 27 people to a far away land for three weeks. As organization you really need to make sure that everyone does the things he or she is supposed to do. If things do not work out as they should, it is best if you communicate this as soon as possible. Just say what is on your mind, even though that is said easier than actually done. The second thing is momentum, as organization you should maintain the momentum. If you lose this while organizing, you may not be able to get it back on times that you really need it. Make a good plan and stick to it. The third thing is: always know that you work in a team. If there is a problem or whatever, know that your teammates are there for you and can back you up. And finally, have a lot of fun and enjoy every minute organizing it. I think we all learned this and can use this in the future. There is no question about the great job we all did and we can be very proud of what we have done the last 1,5 years.

I would like to thank and hug all the participants, Olaf, Harry for being there with me. I would like to thank Geert for his ridiculous stunt at the club where we were with the students of the IBR. I would like to especially thank Ester, Pjotr, Tjitske and Cees for being a great team. Thank you guys! But also I think I should say sorry to Tjitske for being so difficult. I am sorry ;) . I would like to give my warm thanks and also a big hug to Joyce and Mila for their help with the program and all the advice and information they gave us. I would like to thank and hug everyone over there who we have met and talked with, helped us with organizing, for letting us stay at their hostel or for the great visits we made to them, or just the great night at the pool in Foz do Iguaçu. You are just too much in number to all call you by name, I am sorry! I would like to thank my contacts at the UOCG, Force Vision, UB and GasTerra for the cases and for the pleasant contact we had. I would also like to thank all the contacts with who we could not set up a case, because the contact with them was good and a boost to keep on searching. Finally I would like to thank the professors involved with these cases.

São Paulo, Foz do Iguaçu, Colonia del Sacramento and Buenos Aires are good dreams and I wish that they would visit me sometimes at night, because I miss them. I hope to go back there some day to revisit them and to see more of Latin America.



## From the commissioner of business and foreign relations

*Ester van der Pol*



Unlike some of my other decisions which were sometimes a bit rash, the GBE committee was something I could think about for at least half a year in advance, thanks to my colleagues on the board of the FMF. All four of them were part of the old committee, the Orange Tigers. They had the best stories about their trip but also about being part of a committee that organized something so great and adventurous that it will stay with you for the rest of your life.

So when the time came to apply for the committee, they had me at "Hello". Joining four other enthusiastic science students, we formed the new GBE committee. After one of our first meetings, it was decided to throw the traditional division of the tasks and two of us took on a double function so they could help lift each others tasks when the time came for pressure. Sam and myself were these two stubborn people.

After deciding pretty quickly on our destination, we took quite a long time with our name. In the end we choose a name of an overwhelming thing in nature, Iguazú, named after the Iguazú Falls on the border of Argentina and Brazil. Happy with the name and destination, our journey had just begun. It turned out that the five of us are all very different people, and that had its good and bad sides. It didn't run smoothly all the time, but in the end we managed to work together quite well.

The cases, unfortunately, weren't very easy to find and especially Sam and Cees worked very hard on this. The crisis had struck Groningen at last. In the end, we managed to find a case study for everybody and we could focus our attention on the daily program, which was more in my kind of workline.

The first thing I noticed about people from South America, is that they are very friendly. They want to help you with everything and you are welcome everywhere. The South Americans aren't only friendly, but are also well known for their mañana-mañana attitude. Which didn't always mean a loose attitude, but mostly a very relaxed way of living, something I fell in love with instantly. During daily program planning, the hostels were quickly found





and booked and we had quite a few contacts from our university for academic trips. The companies were harder to find, but in the end the program was almost full. A few uncertainties still remained when we finally gathered at the railway station to leave for South America.

The program in Buenos Aires was perhaps a bit full, but we wanted people to see the best of the city and also of São Paulo. Scientific excursions were very interesting, but more memorable were the trip to the favelas, the horse riding adventure and of course the trip to the Iguazú Falls. The nightlife was also explored quite intensely in various ways by a lot of people. It sometimes was hard to get up in the morning, but thinking about the fact that we were on the other side of the world, was a great push to get out of bed on time every day. Unfortunately the small number of showers and maybe our lack of strictness made that some people were always late, which didn't improve the mood of some of my committee members.

On our last night I was a bit sad, and I promised myself that I would come back soon. It was a very strange experience to travel with so many people of whom a lot I didn't know in the beginning. I believe we all have one thing in common after these three weeks, outside of the few Portuguese and Spanish words we all speak, a memory that will never leave our minds. It was a pleasure traveling with you and especially working with four people to make this all happen. It was a truly an once in a lifetime experience.







In October of the year 1515 the Spanish explorer Juan Díaz de Solís set sail for Latin America. After reaching the Brazilian coast, Díaz de Solís continued his journey going south. In January 1516 he discovered Río de la Plata, the natural border of what we call Uruguay and Argentina nowadays. Díaz de Solís is considered the first European to set foot on Argentinian land.

In 2009 traveling towards Brazil and Argentina is much more comfortable and a lot safer. However, it is an adventure nonetheless. To guide a group of twenty excited students and two enthusiastic scientific staff members through an unknown country is a challenge. But during the preparation of the 2009 excursion and the excursion itself, Tjitske, Pjotr, Samuel, Ester and Cees proved that besides being adventurous they have more praiseworthy characteristics.

The Foundation GBE-FMF is an organization affiliated with the Fysisch-Mathematische Faculteitsvereniging (FMF), a study association for students in the field of Astronomy, Computing Science, (Applied) Mathematics and (Applied) Physics. Its objective is to organize a scientific intercontinental excursion every two years. To realize this, the Foundation seeks a committee of five competent students, willing to invest a lot of time and part of their soul into organizing this. Preparations for the excursion began in early 2008. I remember joining the board of the Foundation about the time the committee was formed. This allowed me to follow the entire process closely, from the early ideas to the final report you're reading now.

After three excursions to Asia and one to North America in the last decade most of the northern hemisphere had been covered. It was time to discover what the rest of the world had to offer. The committee decided on Brazil and Argentina and their largest cities, respectively São Paulo and Buenos Aires. They continued by picking a fitting name for their journey: Iguazú.

The hardest part of the preparations was yet to come. The committee started looking for casestudies to finance the excursion. Fueled by a worldwide economic crisis this proved no easy task. Many companies were uncertain about the nearby future and not very eager to hire students for a casestudy. I couldn't tell you how many hours Samuel, Ester and Cees spend on the phone, but their labour was inspiring. However, a lot of effort alone doesn't finance plane tickets. The committee started thinking



of clever ways to save money in case the number of casestudies would not reach the desired 10 (with two students working on a case study). Luckily, none proved necessary.

In retrospect, the problems in the preparation turned out to be the biggest that the committee faced, as during the trip itself everything seemed to go fluently. At least that was the impression that I got from the text messages ("Brazil is fantastic") and the stories of the participants after they had returned from Buenos Aires.

Looking back on these two years I can proudly say that the excursion Iguazú '09 was a big success. Despite all the trouble with finding casestudies, every participant could be assigned to one in the end. I would like to thank all the companies and institutions that provided them. You can read all about the casestudies in the case reports.

Also, on behalf of the entire board, I need to thank all the subsidizers, whom are listed in the financial report, as well as the board of the Faculty of Mathematics and Natural Sciences who provided a loan to ensure liquidity during the trip. Without the support of these institutions this excursion could not have taken place. Hopefully, with their support the Foundation will be able to organize many future excursion in the years to come.

Last, but not least (in fact, the people who deserve the most credit) I want to thank Tjitske, Pjotr, Ester, Samuel and Cees for everything they've done. Without enthusiastic students like them it's impossible to continue organizing study tours. I hope their example has inspired others to follow in their footsteps.

Ivar Postma

During the 2009 excursion the board of the Foundation GBE-FMF consisted of

Femke van Seijen (chairman)

Ivar Postma (secretary)

Erik Duisterwinkel (treasurer)

Roel Tempelaar

Corine Meinema

Martine Bol (FMF board representative)



# Financial Report





This section contains the financial report of the study tour. It consists of two parts; the first is the balance sheet, containing an overview of assets and liabilities of the foundation GBE-FMF. The second part contains the settlement, with an overview of revenues and expenditures of the Iguazú trip.

A few remarks on the balance sheet can be made. Firstly, in the past the choice was made to have a reservation of two casestudies. As it is very hard to arrange for enough casestudies, this reservation can be used by the next committees that will organize the foreign study trip. It should be noted, that the foundation is not planning on increasing reservations for casestudies, but targets a reservation of two casestudies only.

Secondly, the foundation decided after the previous trip that some amount of money should be reserved for the computers that it is using. The foundation is allowed to use the computers of the FMF. However, as computers get older, it is necessary to invest in new computers. This way, we can ensure enough available work places for the next committee. The reservation of the previous trip together with the money for computers of this trip is transferred to the reservation for computers of the FMF.

The 345 euro on the balance sheet for GBE '11 is the money left over from all subsidies which is going to be used for the next studytrip which is planned for 2011.

Finally, an amount of money must be reserved for the organization of the foundation GBE-FMF. This is to pay costs such as banking costs and memberships. This money may also be used in a possible re-organization of the foundation and for the coming changes in the statutes of the foundation.

Also on the settlement a few remarks can be made. Due to the development of one of the casestudies of the UCLT, the income for this particular case study is less than expected. The expenses on vaccinations was far less than expected due to the fact that most participants already had the vaccinations needed for this trip. The flight could be made cheaper if this would be done from Frankfurt. Some extra expenses had to be made to travel to Frankfurt. Furthermore the hostels ended up to be cheaper than initially thought. Due to these changes there was money available for more excursions.

## Balance

October 1, 2009

All numbers are in euros and rounded to 1 euro

Assets		Liabilities	
Bank	€ 7,845	Reservation foundation	€ 800
		Reservation GBE '11	€ 345
		Reservation casestudies	€ 6,700
<b>Total</b>	<b>€ 7,845</b>	<b>Total</b>	<b>€ 7,845</b>



## Settlement

December 13, 2009

All numbes are in euros and rounded to 1 euro

### Revenues

#### Casestudies

Gasterra	€ 3,400
University library	€ 1,700
Noordhoff uitgevers	€ 3,400
University center for learning and teaching	€ 5,667
Nederlandse Aardolie Maatschappij BV	€ 3,400
Deltares	€ 3,400
The New Voting Foundation	€ 3,400
Force Vision	€ 3,400
University of Groningen - Science shop	€ 1,700
Netherlands Institute for Space Research	€ 3,400

**€ 32,867**

#### Participants contribution

Scientific staff	€ 2,800
Students	€ 22,570

**€ 25,370**

#### Subsidies

University of Groningen - ONT	€ 2,150
University of Groningen - Faculty of Mathematics and Natural Sciences	€ 2,500
University of Groningen - The Institute of Mathematics and Computing Science	€ 1,050
University of Groningen - University shop	€ 150
University of Groningen - Stichting Groninger Universiteitsfonds	€ 500
University of Groningen - KVI	€ 500
Fysisch-Mathematische Faculteitsvereniging	€ 1,530
Foundation for Fundamental Research on Matter	€ 750
Nederlandse Natuurkundige Vereniging	€ 2,000
Koninklijk Wiskundig Genootschap	€ 250
Stichting Physica	€ 600
European Physical Society	€ 300

**€ 12,280**

#### Miscellaneous

Interest	€ 19
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**€ 19**

**Total**

**€ 70,536**

## Expenditures

<b>2,867</b>	<b>Organization</b>		<b>€ 3,794</b>
	Participants meeting	€ 1,055	
	Banking costs	€ 516	
	Representation	€ 460	
	Vaccinations	€ 942	
	Miscellaneous	€ 98	
	Promotional gifts	€ 423	
	International phone calls	€ 300	
	<b>Printing cost</b>		
	Final report	€ 2,376	<b>€ 2,953</b>
<b>5,370</b>	Letter paper	€ 187	
	Miscellaneous	€ 390	
	<b>Transportation</b>		
<b>2,280</b>	Plane tickets	€ 33,899	<b>€ 40,576</b>
	Travel expenditures Brazil	€ 2,259	
	Travel expenditures Argentina	€ 1,412	
	Train Groningen-Frankfurt	€ 3,006	
	<b>Stay in Brazil</b>		
	Hostels	€ 1,902	<b>€ 8,841</b>
	Meals	€ 5,599	
	Excursions	€ 1,328	
	Miscellaneous	€ 12	
	<b>Stay in Argentina</b>		<b>€ 13,662</b>
	Hostels	€ 2,433	
	Meals	€ 4,368	
<b>€ 19</b>	Excursions	€ 6,861	
	<b>Miscellaneous</b>		<b>€ 710</b>
	Write-off computers	€ 200	
	Reservation foundation GBE-FMF	€ 510	
<b>0,536</b>	<b>Total</b>		<b>€ 70,536</b>



# Scientific Staff





## Impressions from Olaf Scholten



With a view on the Andes mountains it is a pleasure to think back of the FMF trip now already about six months ago. A complete report discussing all places we have visited can be found elsewhere and I limit myself therefore to the more general impressions that this trip have left on me.

One aspect is the sheer size and vastness of the two countries we have visited. In spite of the fact that we have been in only a small part of Brazil and Argentina it is clear that both have an incredible expanse and a very impressive nature. An exceptional example of this is of course the Iguazú Falls with the very rich flora and fauna. Just look back at the scores of pictures taken at the falls and the many colourful butterflies. However there was also the impressive bus drive down the cliff between São Paulo and the coast. Impressive was the vastness of the Pampa near Buenos Aires where the whole group went on horse back. Also the cities are huge, which makes me think back to the long taxi rides we have made in Buenos Aires.

The people are in a certain way a reflection of the country, open, spontaneous, and sometimes a little disorganized. The latter we saw in some of our visits where our hosts were apparently ill prepared for our visit and seemingly had to get organized on the fly. Also two museums were closed even though the organization had been assured beforehand that they would be open to the public. The open nature of the people was apparent from the contacts we had with the students. While waiting at the physics department of the University of La Plata I got into a discussion with a group of first year students. In spite of their moderate command of English they were genuinely interested to hear about research in Groningen and while discussing were sharing their maté cup with me. After the long bus ride I was happy to have a coffee replacement. Also at the visit of the favela the people gave us and excellent welcome with fruits and cake. Towards the end of this visit, when they learned that we were interested in capoeira, they went out to call together the local capoeira group to give us a performance. This was great!

It was striking to see is the enormous difference between the rich and poor which was most blatant in Brazil. Extremely poor neighbourhoods, much worse than the favelas we visited, close to quarters with many extremely rich houses which apparently needed to be guarded with big fences. We all know this from TV but nothing matches seeing this in person.

From the scientific side the visit was a little disappointing. Having seen the country it is clear that the emphasis lies on the education of the population which is comparatively young. This implies that the university staff has a rather heavy teaching load which goes at the expense



of time spent on research. In addition the governments emphasize much more the general development of the country and thus put less money into interesting basic research. We got the feeling that in Brazil, which presently has a stronger economy than Argentina, things are slowly changing. The contact we had with the students of the different universities were interesting and inspiring for me as well as the rest of the group. One handicap is that many do not speak English well enough to have a real relaxed discussion. I was really impressed with the enthusiasm with which the junior staff at the University of Buenos Aires (UBA) were able to explain their projects. This was clearly also inspiring for the students of our group who came with a large numbers of



in-depth questions. I see this as an excellent example of how such a visit should be organized. Already the welcome at UBA was very pleasant with the many black-and-white cows that were posted in their building.

Thanks to the excellent organization of the whole trip ran smoothly. Sometimes we felt a little too well looked after when not allowed to go to the store alone in a neighbourhood that was perfectly safe. The atmosphere in the group was very pleasant and everyone seemed to be able to get along with all others. The hostels were very well chosen and reasonably comfortable where the one near Iguazú falls was unmistakably the best. The touristic visits were well chosen and interesting. The visit to the hydroelectric power station and the nuclear reactor were very well organized including an excellent presentation by their staff.

It was for me a pleasant experience to join a group of students on such an extended trip. A lot of effort has been put in by the student organization to have all run smoothly. I have however the impression that better use could have been made by the possibilities that are offered by the presence of two senior scientists in the group. This could have helped to raise the scientific level of the visits to the research institutes, some of which were a little disappointing this time. My recommendation is to include the scientific staff in an early stage in the planning discussions of the scientific visits.

Olaf Scholten

Malargüe, November 8, 2009





## Impressions from Harry Trentelman

While I start writing my final impressions of the wonderful excursion to Brazil and Argentina, it is hard to imagine that it all actually happened, back in April and May of this year. Here, in Europe, the darkness of November prevails, over there in São Paulo and Buenos Aires it must be summer by now, and I wished I was there.

For me, the trip to South America was certainly the highlight of 2009, not only because of the extraordinary cities and places that we visited, but also because of the very special circumstance of being in the company of a group of talented young people, each of which with his or her own peculiarities and opinions, but without exception all of them very special. As a university professor and teacher I have benefitted a lot from this experience, because it has greatly increased my insights and views on the motivation, capabilities and social and human aspects of my students in general. In plain words: after the trip I have a stronger feeling that "I understand them", and this turns out to be very helpful not only in teaching circumstances, but also in committee meetings with student representatives.

For several reasons, for me the highlight of the excursion was the beautiful city of Buenos Aires. I can only think back of this city in melancholy. So much culture and history could be felt there, ranging from our rather prosaic visits to the stadiums of River Plate (where the Dutch football team lost the final game in the world championship of 1978) and Boca Juniors (Maradonna), to tango dancing in the milonga 'La Viruta'. I still daily listen to the tango CDs that I bought in Palermo, the quarter of Buenos Aires where our youth hostel was located. On a more serious level, I was fascinated by our visit to the nuclear plant of Atucha, where we were allowed to have a very detailed view inside the nearly finished reactor building of Atucha II. I am also sure that for many people in the group our visit to the estancia near Buenos Aires, with the horse riding trips and barbecue, was one of the highlights. During this visit one could just feel Argentina. Also, our visits to the University of Buenos Aires made a big impression on me. Apart from having enjoyed the scientific program, I was very much moved by the monument in one of the university buildings to honour the students and faculty members that were killed during the military dictatorship.







I also enjoyed very much the one-day trip from Iguazú in Brazil to the Argentinian side of the Iguazú Falls. We were transported there in a sort of sightseeing bus owned by the hostel 'Paudimar' where we were staying. The Argentinian driver claimed at several occasions that he only wanted to have chicas in his bus, no chicos. He did however bring us all safely to the waterfalls. The Iguazú Falls are certainly one of the most spectacular sights that I have ever seen in my life.

Of course, also the city of São Paulo was very interesting, and in particular I enjoyed all aspects of our visit to the University of São Paulo. One of the striking impressions of São Paulo was of course the enormous difference in wealth of its inhabitants. In the enormous bookshop close to the quarter where our hostel was located, one often had the feeling of being in one of the big bookshops in Manhattan, filled with wealthy, well-to-do Brazilians. The highlight of our trip to São Paulo was our one-day visit to the favelas, where we were received with an enormous amount of hospitality.

I want to conclude these impressions by expressing my great admiration for the enormous energy and punctuality of the organizing committee: Tjitske, Samuel, Pjotr, Cees and Ester. They worked very hard to make the excursion a big success, and can be proud of the final result!

Harry Trentelman

November 2009











# Acknowledgements







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- Klaas-Jan Stol
- Femke van Seijen
- Ivar Postma
- Erik Duisterwinkel
- Roel Tempelaar
- Corine Meinema
- Martine Bol
- Martien Scheepens

### Board of Recommendation

- Mr. O.W.C. Hattinga van 't Sant (Dutch Ambassador in Brazil)
- Mr. H.J.W. Soeters (Dutch Ambassador in Argentina)
- Prof. dr. F. Zwarts (Lord Rector of the University of Groningen)
- Prof. dr. S. Daan (Dean of the Faculty of Natural Sciences of the University of Groningen)
- Prof. dr. J. Knoester (Director of Zernike Institute for Advanced Materials)
- Prof. dr. M.N. Harakeh (Director of Kernfysisch Versneller Instituut)
- Dhr. P. de Wit (President-Director of Shell Nederland B.V.)

### Subsidizing Institutes

- Faculty of Mathematics and Natural Sciences
- Department of Natural Sciences and Technology
- Department of Information Sciences
- Foundation Groninger Universiteitsfonds (GUF)
- Royal Institution of Engineers in the Netherlands (KIVI-NIRIA)
- Foundation for Fundamental Research on Matter (FOM)
- Netherlands Institute for Space Research (SRON)
- Zernike Institute for Advanced Materials
- Nuclear Physics Accelerator Institute (KVI)
- The Netherlands' Physical Society (NNV)
- European Physical Society (EPS)
- Foundation Physica
- Fysisch-Mathematische Faculteitsvereniging (FMF)
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- SRON (P.R. Roelfsema)
- Science Shop Mathematics and Natural Sciences (C.M. Ree)
- The New Voting Foundation (S. van Grieken)

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- Prof. dr. O. Scholten
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## Committee Iguazú '09

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Chairman

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Commissioner of business relations

Ester van der Pol

Commissioner of business and foreign relations

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