

Report from the International Geoid Service (IGeS) School for the Determination and Use of the Geoid, Copenhagen, June 19th - 23rd 2006.

The school was hosted by the Niels Bohr Institute at the University of Copenhagen and run from June 19 – 23, 2006. The teachers were Prof. Fernando Sansò (Politecnico di Milano), Dr. Ole Andersen (Danish National Space Center), Prof. C.C.Tscherning, (University of Copenhagen), Prof. M.Sideris (University of Calgary), Dr. N. Pavlis, SGT, Inc, Greenbelt, and Stategeodesist R.Forsberg (Danish National Space Center). The school received support from IAG in the form of 4 travel grants.

The lectures covered both theory and computational aspects of global and regional gravity field models. As a new addition to the lectures, N.Pavlis included a description of a new (preliminary) spherical harmonic model to degree 2160. Software which could be used to evaluate such a model, as well as software related to the different methods presented during the lectures were distributed free of charge to the participants.

There were 24 participants from 15 countries.



From left to right: R.Teixeira Luz (Brasil), Tarek Laghzil (Maroc), Ramon Garcia (Mexico), Christina Schneider (LOC, Denmark), Anwar Radwan (Egypt), Eulalia Pares (Spain), Lars Prange (Switzerland), Mohammed El Fadili (Maroc), Louise Sandberg (Denmark), C.C.Tscherning (Denmark), Ana Flôr (Portugal), Jose Rosales (Spain), Toke Andersson (Denmark), Lisa Petrusini (Italy), Alberto Molteni (Italy), Henning Föh (Denmark), Constantin Andrei (Romania), Ernest Bosch (Spain), Dagny Lysaker (Norway), Huseyin Onur Yilmaz (Turkey), Daniel Prouty (USA)

PROGRAM:

1st day (June 19):

09.00	Registration and Opening Cerimony
09.30	Lecture 1 - General Introduction to Physical Geodesy (Prof. F.Sanso')
11.00-11.15	Coffee Break
11.15	Lecture- 2 General theory of Geoid Computation (Prof. F.Sanso')
12.30-13.30	Lunch
13.30	Lecture 3 - The romove - restore concept (Prof. F.Sanso')
15.00 - 15.15	Coffee Break
15.15	Seminar: Geoid, gravity and sea-level from radar altimetry (Dr. O.B.Andersen)
16.30	Day ends
17.00	Ice-breaker reception

2nd day (June 20):

09.00	Lecture 4 - The global geopotential models (Prof. N.Pavlis)
10.45-11.00	Coffee Break
11.00	Lectur 4- continued
12.30-13.30	Lunch
13.30	Exercises 1, Global Models (Prof. N.Pavlis)
15.00-15.15	Coffee Break
15.15	Exercise 2, Global Models (Prof. N.Pavlis)
16.30	Day ends.

3rd day (June 21):

09.00	Lecture 5 - The collocation method in Physical Geodesy, (Prof. C.C.Tscherning)
10.45-11.00	Coffee Break
11.00-12.30	Exercise 1 on Collocation
12.30-13.30	Lunch
13.30	Lecture 6 - The FFT methods in Physical Geodesy, (Prof. M.Sideris)
15.00-15.15	Coffee Break
15.15	Lecture 6, continued (Prof. M.Sideris)
16.30	Day ends

18.30 Official Dinner

4th day (June 22):

09.00	Lecture 5 - continued (Prof. C.C.Tscherning)
10.45-11.00	Coffee Break
11.00	Exercise 2 on Collocation
12.30-13.30	Lunch
13.30	Exercise 1 on FFT (Prof. M.Sideris)
15.00-15.15	Coffee Break
15.15	Exercise 2 on FFT
16.30	Day Ends

5th Day (June 23):

09.00	Lecture 7 - The terrain effect in geoid estimation (Prof. R.Forsberg)
10.45-11.00	Coffee Break
11.00	Lecture 7 ♦ continued
12.30-13.30	Lunch
13.30	Exercise on Terrain effects (Prof. R.Forsberg)
15.00-15.15	Coffee Break
15.15-16.00	Closing Session.

The program and some of the presentations are available at
<http://www.gfy.ku.dk/~geoid06>

Summary of evaluation of the IGeS Geoid School:

Number of participants: 23

Number of replies: 11

Good things about the school:

All most all of the students praised the teachers:

- The proficiency
- The structure of the lectures
- The contents of the lectures

They also liked:

- The international atmosphere of the school
- Meeting people from so many countries
- The good atmosphere created at the school
- The social events.

Dislikes about the school:

Comments on the length of the school and the timetable:

- The length of the school was too short. There is too much information to absorb in a very short period of time.
- The timetable was too tight. They needed shorter lectures and more breaks.

Comments on the content of the lectures:

- Some of the lectures were too theoretical. The students come with different backgrounds and some of them had difficulties understanding the mathematical part.

Comments on the exercises:

- Too little time for exercises
- Some of the exercises were without assistance, which was missing.
- A visualization of the exercises they had on the computer could be useful
- At the end of the school they could have a manual of the programs/exercises they have made. A guideline on how they step by step use the data to get a result, and a more detailed explanation on how to use the software could be of great help later on.

Improvements for the next schools:

- The length of the lectures shouldn't be over one hour.
- A standardization of the programmes.
- The notation deviate too much, which is confusing for the students.
- A closing lecture, where a summary of the main things during the school is summed up, could be helpful for the understanding.
- Some of the material should be mailed to the participants prior to the school. In that way the students has time to prepare, which could be helpful for the understanding.