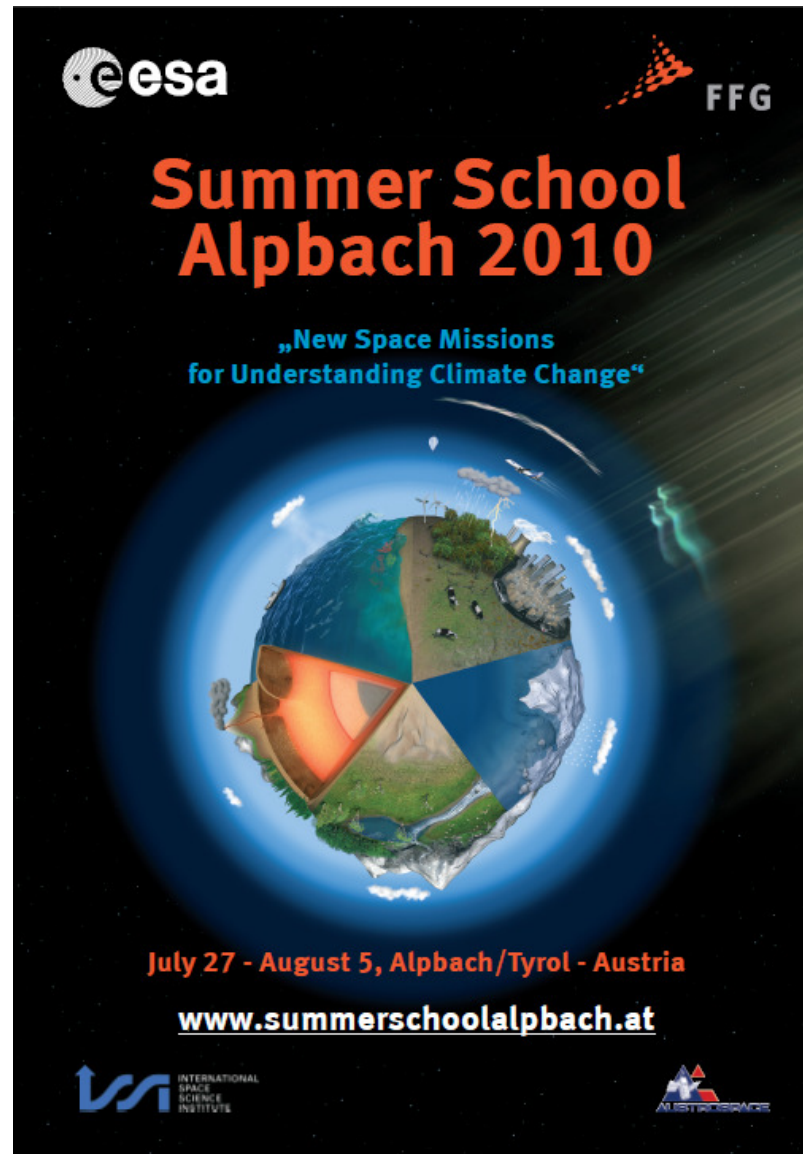




Summer School Programme

The poster features a central image of a globe with a cutaway section revealing internal layers of orange and red, set against a dark space background with a bright blue ring of light. Logos for ESA and FFG are at the top, and logos for ISI and ALPSTRACK are at the bottom.



  FFG

Summer School Alpbach 2010

„New Space Missions
for Understanding Climate Change“

July 27 - August 5, Alpbach/Tyrol - Austria

www.summerschoolalpbach.at

 INTERNATIONAL
SPACE
SCIENCE
INSTITUTE 

Alpbach – The Venue

Contact Address:

Hotel Böglerhof

A-6236 Alpbach

Tel +43-5336-5227

Fax +43-5336-5227 402

Lectures:

School House of Alpbach

A-6236 Alpbach

Tel +43-5336-20429

Fax +43-5336/54904



New Space Missions for Understanding Climate Change

Held annually since 1975, the Summer School Alpbach enjoys a long tradition in providing in-depth teaching on aspects of space science and space technology. The purpose of the Summer School is to foster the practical application of knowledge derived from lectures, to develop organisational and team-work skills and to encourage creativity.

The Summer School is organised by FFG in cooperation with ESA, the national space authorities in it's member and cooperating states and ISSI and supported by Austrospace.

The Summer School Alpbach 2010 will address innovative mission concepts aiming to increase our knowledge of key processes of the global climate system. Students will learn how to approach the design of a space mission that will meet specific goals to improve our understanding of the Earth's climate system. 4 Teams will compete to design a space mission each, judged by a jury of experts.

Programme Committee

Harald Posch, FFG, **Chairman**

Josef Aschbacher, ESA

Andre Balogh, ISSI

Giuseppe Bianco, ASI

Roger Bonnet, ISSI

Paal Brekke, Norwegian Space Centre

Wolfgang Baumjohann, Space Research Institute/Austrian Academy of Sciences

Francesco Emma, ESA

Fabio Favata, ESA

Michaela Gitsch, FFG

Hartmut Grassl, Max Planck Institute for Meteorology, Hamburg

Henrik Grage, Danish Agency for Science, Technology and Innovation

Lucien Hoffmann, Luxembourg

Sander Houweling, SRON

Shahin Kazeminejad, DLR

Gottfried Kirchengast, University of Graz

Mika Janos, Hungarian Meteorology Service

Johannes Ortner, Austria

Alain O'Neill, NERC

Thierry Phulpin, CNES

Helmut Rott, University of Innsbruck

Summer School Staff

Chairman of Programme Committee: Harald Posch, FFG

Summer School Director: Michaela Gitsch, FFG

Summer School Vice-Director:

Wolfgang Baumjohann, Space Research Institute

Summer School Administration:

Clare Bingham, ESA

Silvia Wenger, ISSI

Technical Management:

Martin Mauersberg, Alpbach

Tutor Liaison:

Michel A. Jakob, Austria

Summer School Tutors

Head Tutor:

Andre Balogh

Team Tutors Science:

Helen Brindley, Simos Koumoutsaris, Marco Scharringhausen, Susanne Schweitzer

Team Tutors Engineering:

Klaus Brieß, Farid Gamgami, Joachim Hahne, Marie-Jose Lefevre

Team Orange: Helen Brindley, Klaus Brieß

Team Blue: Simos Koumoutsaris, Farid Gamgami

Team Green: Marco Scharringhausen, Marie-Jose Lefevre

Team Red: Susanne Schweitzer, Joachim Hahne

Roving Tutors:

Miguel Aguirre, Antonio Ciccolella, Peter Falkner, Günter Kargl, Sander Houweling,
Helmut Rott

Tuesday, July 27

- 8:00 **Registration**
- 9.00 **Opening Session moderated by Peter Jankowitsch, FFG**
Harald Posch, FFG
Johann-Dietrich Wörner, DLR
Wolfgang Baumjohann, Space Research Institute
- 10:00 Coffee Break*
- 10:15 **THE EARTH'S CLIMATE**
Lennart Bengtsson, ISSI
- 11:15 **CLIMATE CHANGE - CHALLENGES**
Hartmut Grassl, Max-Planck Institute for Meteorology
- 12.15 **SATELLITE MISSIONS FOR CLIMATE OBSERVATIONS OF ESA AND OTHER AGENCIES**
Volker Liebig, ESA
- 13:15 Lunch Break*
- 15:30 **RECENT PROGRESS IN CLIMATE OBSERVATIONS FROM SPACE**
Stephen Briggs, ESA
- 16:30 Coffee Break*
- 17:00 **SYSTEMATIC OBSERVATION REQUIREMENTS FOR CLIMATE (GCOS) AND ESA'S APPROACH**
Mark Doherty, ESA
- 18:00 **WORKSHOP PREPARATION**
Project Phases, Team Building and Team Structuring
Andre Balogh, ISSI
- 19:00 Dinner*

*Evening lecture by Francois Forget, LMD, Institut Pierre Simon Laplace
„Lessons from other planets : monitoring climate variations and testing climate models“*

Wednesday, July 28

- 09:00 **WATER CYCLE**
Gilles Boulet, CNES
- 10:00 **CRYOSPHERE**
Helmut Rott, University of Innsbruck
- 11:00 Coffee Break*
- 11:30 **CARBON BALANCE**
Shaun Quegan, Centre for Terrestrial Carbon Dynamics
- 12:30 Lunch Break*
- 14:30 **GREENHOUSE GAS OBSERVATIONS FROM SPACE: CURRENT STATUS AND FUTURE NEEDS**
Maximilian Reuter, University of Bremen
- 15:30 Coffee Break*
- 16:00 **AEROSOL MONITORING FROM SPACE**
Helen Brindley, Imperial College London
- 17:00 **WORKING TEAM MEETINGS**
- 19:00 Dinner*

Thursday, July 29

- 09:00 **ADVANCES IN STUDIES OF OCEAN CIRCULATION
FROM SATELLITE OBSERVATIONS**
Jonny A. Johannessen, Nansen Environmental and Remote Sensing Center
- 10:00 **MISSION AND SYSTEM DESIGN**
Peter Falkner, ESA
- 11:00 Coffee Break*
- 11:30 **MISSION ANALYSIS ASPECTS FOR EARTH OBSERVATIONS MISSIONS**
Antonio Ciccolella, ESA
- 12:30 Lunch Break*
- 14:30 WORKSHOPS
- 16:30 Coffee Break*
- 19:00 Dinner*

Friday, July 30

09:00 **SOLAR IRRADIANCE VARIATIONS: What have we learned from the last three solar cycles ?**
Claus Fröhlich, Physikalisch-Meteorologisches Observatorium Davos / World Radiation Centre

10:00 **CLOUDS AND PRECIPITATION**
Daniele Casella, Consiglio Nazionale delle Ricerche,
Istituto di Scienze dell'Atmosfera e del Clima

11:00 Coffee Break

11:30 **OBSERVATION TECHNIQUES**
Pierluigi Silvestrin, ESA

12:30 Lunch Break

14:30 **WORKSHOPS**

16:30 Coffee Break

17:00 ***Mission objectives and observations requirements Review***

19:00 Dinner

Evening Lecture by ESA Astronaut Alexander Gerst (Summer School student in 2006)

Monday, August 2

09:00 **CALIBRATION, VALIDATION AND DERIVATION OF VALUE-ADDED DATA**

Pascal Lecomte, ESA

10:00 **DATA ASSIMILATION AND SYNERGIES FOR CLIMATE RESEARCH**

Hendrik Elbern, University of Cologne

11:00 Coffee Break

11:30 **GMES FOR SCIENCE**

Josef Aschbacher, ESA

12:30 Lunch Break

14:30 WORKSHOPS

16:30 Coffee Break

17.00 ***Mission Preliminary Design Review***

19:00 Dinner

Tuesday, August 3

09:00 **WORKSHOPS**

11:00 Coffee Break

11:30 **WORKSHOPS**

12:30 Lunch Break

14:30 **WORKSHOPS**

16:30 Coffee Break

17:00 **Mission Final Design Review**

19:00 Dinner

Wednesday, August 4

09:00 **WORKSHOPS**

11:00 Coffee Break

11:30 **WORKSHOPS**

12:30 Lunch Break

14:30 **WORKSHOPS**

16.00 **Individual Team Rehearsals**

16:30 Coffee Break

19:00 Dinner

Thursday, August 5

Presentation of Mission Studies

Chairman: Andre Balogh

- 00.00 **Latest delivery of presentation material**
“Bed time”
- 9.00 **Presentation Team A**
- 10.00 Question and Answer Period
- 10.30 Coffee Break***
- 11.00 **Presentation Team B**
- 12.00 Question and Answer Period
- 12.30 Buffet Lunch served at the School House**
- 13.30 **Presentation Team C**
- 14.30 Question and Answer Period
- 15.00 Coffee Break***
- 15.30 **Presentation Team D**
- 16.30 Question and Answer Period
- 17.00 **Closing Remarks by Chairman**
- 17.15 ***MEETING OF THE JURY***
- 19.30 ***FAREWELL DINNER & ANNOUNCEMENT OF JURY EVALUATION***