

HIGH-SCHOOL COMPETITION

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INSTITUT FÜR ERDMESSUNG
LEIBNIZ UNIVERSITÄT HANNOVER
GFZ-POTSDAM @03.06.2016

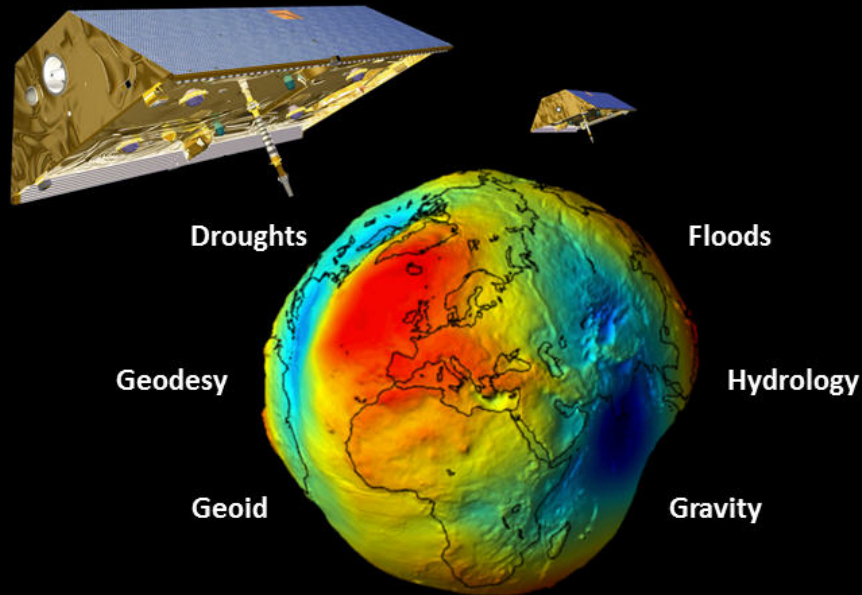


European-wide student competition

THE **EGSIEM** European Gravity Service for Improved Emergency Management CHALLENGE

Registration opens on
October 1, 2016

www.egsiem.challenge.eu



Emergency Management



THE GOALS

- **EDUCATION:** Geodesy, Hydrology and Emergency services with focus on EGSIEM research topics
- **ATTENTION:** The importance of Earth Observations Programs (Satellites, Systems and Services) for monitoring and forecasting of natural hazards
- **CURIOSITY:** To awake students' interest about the EGSIEM
- **OPPORTUNITY:** To give students some opportunities in terms of summer school or a research internship!

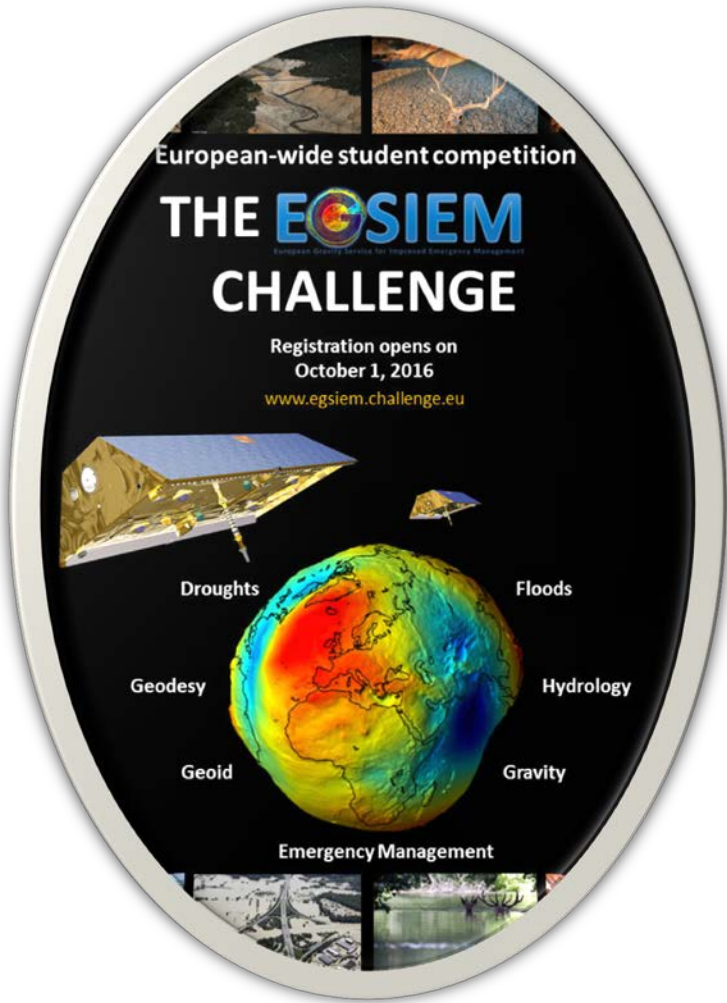


TARGET GROUP

- **UNIVERSITY STUDENTS:**
 - Undergraduate and Graduate [B.Sc. &M.Sc.]
 - Focusing on Geodesy, Hydrology and Geophysics students, but others are welcome!
 - [19 – 29] years old
 - EU & CH residents [foreign students]



WHAT SHOULD BE LEARNED?



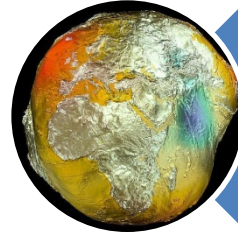
European-wide student competition

THE EGSIEM CHALLENGE

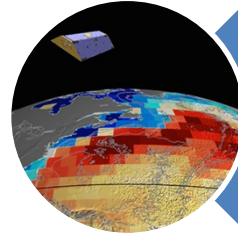
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Droughts Floods
Geodesy Hydrology
Geoid Gravity
Emergency Management

The graphic is a circular collage with a black background. At the top, it says 'European-wide student competition' and 'THE EGSIEM CHALLENGE'. Below that, it says 'Registration opens on October 1, 2016' and 'www.egsiem.challenge.eu'. The central part features a colorful Earth gravity field map. Surrounding this map are several smaller images: a satellite, a cracked dry earth landscape, a flooded area, and a geoid map. Labels 'Droughts', 'Floods', 'Geodesy', 'Hydrology', 'Geoid', and 'Gravity' are placed around the central map. At the bottom, it says 'Emergency Management'.



Earth Gravity Field



GRACE - Hydrology



Floods and Droughts
Monitoring

COMPETITION ROUNDS

- **1ST ROUND:**
 - 20 questions
 - Multiple-choice
 - The online and offline materials:
 - EGSIM website and its partners
 - GRACE Analysis Centers e.g. GFZ, CSR and JPL
 - Other relevant sources



- **ANYBODY WHO SOLVES 75% OF THE PROBLEMS [15+]**
- **THEY PASS AUTOMATICALLY TO THE 2ST ROUND**

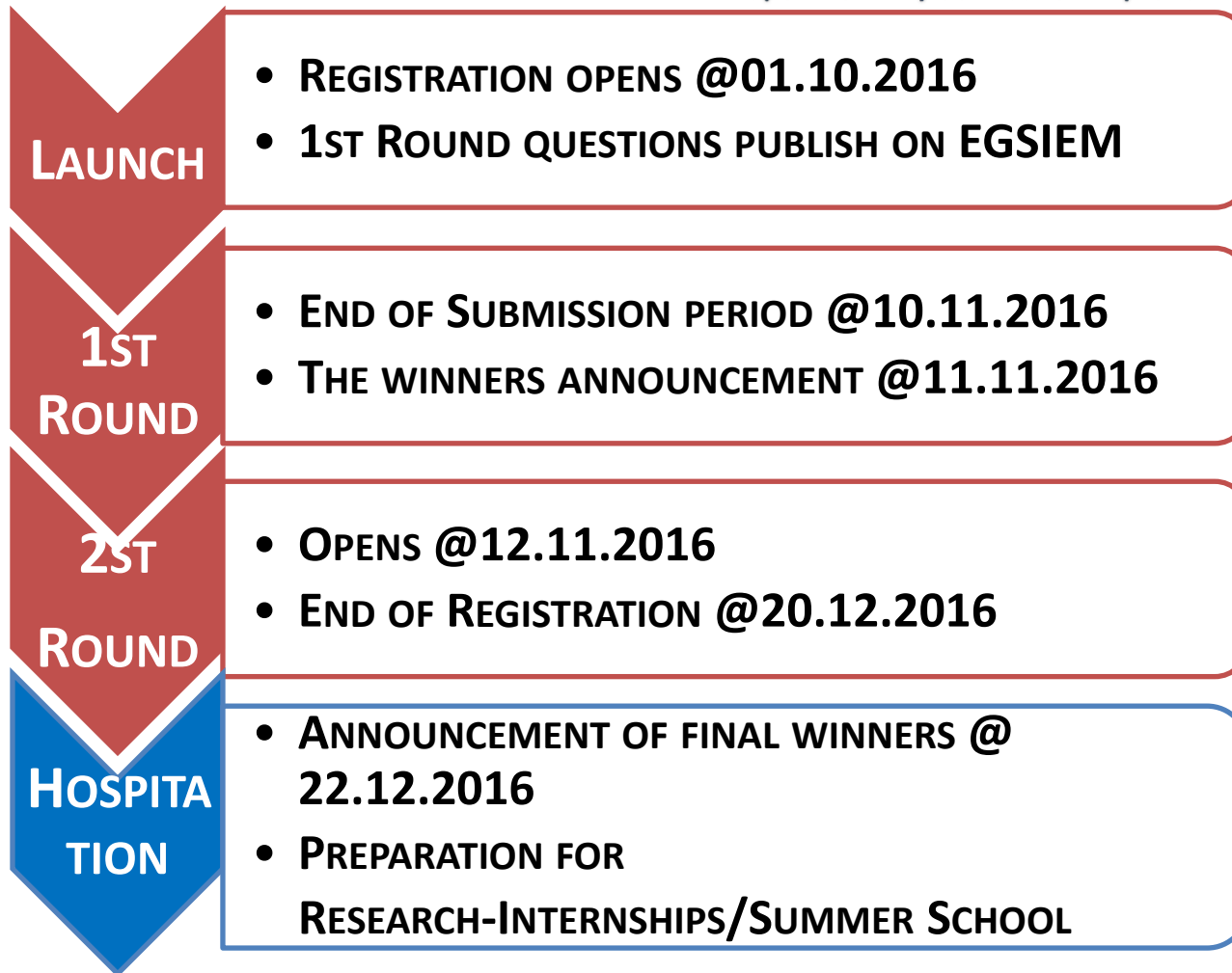
COMPETITION ROUNDS

- **2ST ROUND:**
 - Deeper understanding of the topic
 - 20 open questions
 - The materials (online or offline):
 - EGSIEM website and its partners
 - GRACE Analysis Centers e.g. GFZ, CSR and JPL
 - Introducing some relevant books



- **ANYBODY WHO SOLVES 60% OF THE PROBLEMS [12+]**
- **IF NOBODY REACHED 60%, THE CANDIDATE WHO ANSWERED AS MANY AS QUES.?**

SCHEDULE



AWARDS



TWO INTERNSHIPS

- AT ONE EGSIEM MEMBER INS.
- 6 - 8 WEEKS
- TRAVEL EXPENSES
- HEALTH ACCIDENT & PERSONAL LIABILITY INSU.
- MONTHLY ALLOWANCE



TWO SCHOLARSHIPS

- PARTICIPATION AT EGSIEM SUMMER SCHOOL
- HEALTH EXPENSES, PERSONAL LIABILITY INSURANCES

AWARDS



**SUCCESSFULLY PASSED
1ST ROUND**

- CERTIFICATE
- GIVEAWAYS
 - TRAVEL MUG WITH THE EGISEM LOGO

1ST ROUND QUESTIONS ?

1. **What are the fundamental observation techniques of the Gravity Recovery and Climate Experiment (GRACE) mission, based on which the Earth's gravity field is recovered?**
 - a) *GPS positioning, microwave inter-satellite ranging, ultra-sensitive accelerometer*
 - b) Gravitational gradiometry, GPS positioning
 - c) radar altimetry, GPS positioning
 - d) laser inter-satellite ranging, GPS positioning, ultra-sensitive gradiometry

2. **What is the precision level of the distance measurement between the two GRACE spacecraft?**
 - a) *Micrometer*
 - b) Millimeter
 - c) decimeter
 - d) meter

3. **The GRACE monthly geo-potential models are distributed as spherical harmonic coefficients usually up to degree and order 60. How many coefficients does one such model contain?**
 - a) *3721*
 - b) 60
 - c) 3600
 - d) 1860

4. **The gravity field variations inform about ...**
 - a) *mass distribution and mass transport in the Earth's system*
 - b) structure of the Earth interior
 - c) current weather situation
 - d) geological structure of the lithosphere

COMMUNICATIONS



Blog Entry: Demonstration of new technology on climate monitoring

Akbar Shabanloui 26 May 2016

The Gravity Recovery And Climate Experiment Follow-On (GRACE-FO) is a US-German collaboration in climate monitoring and is a new opportunity for testing and demonstrating laser ranging interferometry technology in geoscience. In addition to the micro-wave distance measurement sensor with noise level of ca. 5 micro-meters between two identical satellites, the distance measurement with the new laser ranging interferometry technique with noise level of ca. 80 nano-meters provides a new opportunity for geoscientists to precisely monitor climate change on the Earth.



Latest News

- Blog Entry: Demonstration of new technology on climate monitoring
- Blog Entry: Utilising the EGSiEM Plotter
- Blog Entry: Extending the lifetime of GRACE
- Blog Entry: EGSiEM Validation using GPS observations
- Blog Entry: EGSiEM in the Classroom



www.egsiem.eu

www.egsiem.challenge.eu



HORIZON 2020

- **E-MAIL LIST OF UNIVERSITIES WITH FOCUS ON GEODESY**



29 COUNTRIES
69 UNIVERSITIES
139 CONTACT PERSONS

PLAN

- **DEFINITION OF THE COMPETITION**
- **RULES**
- **PRIZES**
- **QUESTIONS 1ST ROUND**
- **QUESTIONS 2ND ROUND** (in progress)
- **INTERNAL REVIEW** (to be done) : Feedbacks (15.06.2016)
- **ADVERTISEMENT** (in progress)
- **WEBSITE (WWW.EGSIEM.CHALLANEG.EU)** (to be done) : 15.09.2016

OPEN QUESTIONS

- **PRIZES**

- RESEARCH INTERNSHIPS SHOULD BE AT LUH?
- HOW ABOUT THE SUMMER SCHOOL, DATE IS FIXED?

- **WEBSITE**

- WEBSITE PROGRAMMING (Joomla)
 - CREATING THE SUB-LINK WWW.EGSIEM.CHALLENGE.EU
 - CREATING CONTACT FORMULA
 - APPEARING QUESTIONS RANDOMLY
 - SECURITY ISSUES
 - ...