Centre Européen de Géodynamique et de Séismologie
European Center for Geodynamics and Seismology
Grand-Duché de Luxembourg

Président J-M. Goerens
Secrétaire E. Buttini

ECGS
19, Rue Josy Welter
L-7256 Walferdange
http://www.ecgs.lu

To the International Association of Geodesy

Application of ECGS to host the direction of the

« International Centre for Earth Tides »

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Président d'honneur: Son Altesse Royale Le Grand Duc Henri

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Walferdange, May 31st 2007

Dear Search Committee,

Enclosed you will find a proposal from the European Center for Geodynamics and Seismology (ECGS) to host the International Center for Earth Tides (ICET) there. The ECGS and the Walferdange Underground Laboratory represents a long running scientific partnership between three research entities: The Luxembourg National Museum of Natural History (Mnhn), the Royal Observatory of Belgium (ROB), and the University of Luxembourg (ULux).

I have approached the appropriate individuals within the Luxembourg Government who have agreed to consider increasing the ECGS staff by two individuals (one high level position to serve as director and a second technician level to deal with daily maintenance and support of ICET).

We hope you find this proposal suitable.

Sincerely,

Jean-Mathias Goerens
President ECGS Administrative Committee

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Walferdange, Mai 24th 2007

Application for the direction of the
« International Centre for Earth Tides »

FORMAL COMMITMENT

I undersigned, Jean-Mathias Goerens, President of the Administrative Council of the foundation "European Centre for Geodynamics and Seismology (ECGS)", considering our experience and knowledge in the field of earth tides, have the honour to submit, hereby, the application of ECGS to host the direction of the "International Centre for Earth Tides (ICET)" from January 2008.

I declare that if the Luxembourg Government grants us the necessary budgets and if our candidature is accepted by the International Association of Geodesy, our foundation will ensure all the human, technical and financial resources required for the continuity and the future development of the International Centre for Earth Tides with all its tasks and missions.

Jean-Mathias Goerens
President

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Proposal to host the International Center for Earth Tides

Proposed Direction

A proposal has been submitted to the Luxembourg Government to hire a Scientist to direct ICET. The profile of this individual is an active mid-career scientist with expertise in geodynamics and experience with applying terrestrial gravity observations to addressing geodynamical problems. A second technician position has also been requested. If supported, these individuals will be available 1-Jan., 2008.

As these individuals are currently not on board, it is difficult to provide any proposals for new initiatives.

However, we can at this point guarantee the continuation of current ICET activities and Services including:

1. The collection and archiving of Earth Tide measurements (gravity, tilt, extensometry etc..)
2. Comparison and evaluation of the data from different instruments and stations from all over the world and in particular data from superconducting gravity stations in the Global Geodynamics project
3. Calibration Assistance through the organization of reference stations (e.g. at Walferdange Underground Geodyn. Lab. (WUGL) and the International Station for Intercomparison of Absolute Gravimeters (ISIAG))
4. Development of an Earth tide data bank including observations, associated geodetic and geophysical parameters, Earth models, etc.
5. Assistance with making the data accessible to the wider community through the dissemination of data, metadata, and software
6. The willingness to train young scientists and the potential to host visiting scientists
7. ICET Bibliography

Budget provided by the Luxembourg Government (Salaries + 10.000 Euro/yr)

1. Salary support for ICET Director
2. Salary support for ICET Technician
3. Potential visiting scientist: 3000 Euro/yr + possible support from the Fond National de Recherche's MA6 program (see http://www.fnr.lu/) through the MNHN
4. BIM publishing and mailing: 2000 Euro/yr
5. Hardware: 2000 Euro/yr
6. Missions of the Director: 2000 Euro/yr
7. Overhead: 1000 Euro/yr

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Personnel

ECGS Personnel dedicated to ICET activities

1. One part-time secretary
2. Senior Scientist (to be employed)
3. One Full time Technician (to be employed)

Additional Personnel within ECGS partner institutions available to support ICET

Gilles Celli, a full time employee of the MNHN, with extensive experience in supporting scientific projects of the ECGS and MNHN may additionally be available to support ICET, primarily in the establishment of online databases.

Scientific Innovation

Given the proximity of the ECGS partner scientists who have expertise in geodynamics, gravity, and earth tides, we will propose to the new ICET director to schedule a meeting every 6 months with the scientists. The goal will be to review the status of ICET, assist in solving problems, and brainstorm about the feasibility and value of changes to ICET. This group of scientists might serve as a 'steering committee', to assist in the ICET Director. At the writing of this proposal two scientists have agreed to this role including:

1. Dr. Nicolas D'Oreye (Mnhn)
    a. Instrumentation
    b. Earth tides analysis
2. Prof. Tonie van Dam (ULux)
    a. Superconducting gravity data
    b. Geodynamics
    c. Environmental signals in geodetic data
    d. Chair International Earth Rotation Service, Global Geophysical Fluid Center

Additional considerations supporting the proposal to have ICET in Luxembourg

1. Existing structure in Walferdange with
    a. a long tradition and reputation in Earth Tides
    b. long tradition in instrumentation at WUGL + presence of SG, AG etc.
2. The presence of ISIAG and government support of Gravilux
3. Availability of numerous experts
4. Central position in Europe
5. Proximity and historical relationship to the ROB will facilitate an efficient transfer of technology etc...
6. Proximity and relationship to individuals at GFZ who currently maintain the GGP
7. Library containing donations of Baron P. Melchior, Dr. C. Denis, et al.
8. Establishment of a Geophysics Group at the University of Luxembourg

Appendix: Supporting Information

Legal Basis of the ECGS

The ECGS was created in Luxembourg on June 13th, 1988 (as published in the Memorial "C" N.41- February15, 1989, pp 1936-1938) in accord with the APO (Accord Partiel Ouvert) established by Governments from the States Member of the European Council.

This APO, concerning prevention, protection and assistance organization against technological and major natural risks (Agreement EUR-OPA on Major Risks) has passed the Resolution (87) 2 from the 2nd of March 1987, in which European Community Commission and the UNESCO, the Health World Organization and the Humanitary Affairs Department from the United Nations took part.

On May 17th, 1994, a Convention was signed in-between ECGS and the Grand Duchy of Luxembourg, defining the following tasks for which the ECGS will be supported:

* To promote programs in Geodynamics Research, related to the study of Tectonics Distortions in connection with Earthquakes, with a particular emphasize on Space Techniques.
* To improve the relationship between specialists from different scientific disciplines by supporting regular meetings as part of the “Journées Luxembourgeoises de Géodynamique”, and also by encouraging colloquia and workshops.
* To equip the Underground Geodynamics Laboratory in Walferdange with the necessary scientific and technical equipment for the study of deformation in a tectonically active zone, in order to test its performance in an aseismic site.
* To undertake these specific actions in a scientific interest.

The Grand Duchy of Luxembourg provides annual support to:

* Cover the cost of the permanent staff
* Organize the « Journées Luxembourgeoises de Geodynamique »
* Colloquia and workshops related to geodynamics and seismology
* Support will also be provided to cover the cost of publishing the "Cahiers de l'ECGS" and
* the cost of the maintenance and equipment of the Walferdange Geodynamic Laboratory.

ECGS and the Walferdange Underground Geodynamics Laboratory

The Walferdange Underground Laboratory for Geodynamics is located in an gypsum mine (originally exploited by a commercial company). The sedimentary surface layer above the mine is about 80 meters thick with a distance between the entrance and the old laboratory of 800 meters and the temperature is about 13°C at the end of the mine. This is the ideal place to perform very high precision geophysical measurements.

The advantages of the gypsum mine are: its stable temperature, no running water, no anthropogenic disturbances and it is easy to access.

The mine has hosted the laboratory since 1967 when the first instruments were installed (gravimeters, pendulums, …). Since that time, many more instruments for geophysics and seismology purposes have been installed.

A short list of instruments installed in the WULG:

1. Gravimeters
    - Superconducting Gravimeter
    - Absolute Gravimeter
2. Seismometers (earthquakes)
    - GEOFON Station from GeoforschungsZentrum Potsdam, Germany
    - SP-Lennartz station from Royal Observatory of Belgium
3. Other instrumentation
    - Long base and short base tiltmeters

GPS reference station (outside of the mine)