United Nations
Educational, Scientific
and Cultural Organization

The UNITWIN Programme
UNESCO Chairs and Networks

Proposal for

UNESCO Chair on
Near- Earth Space Environment/ European Space Agency

**Aristoteleion University of Thessaloniki/ Astronomy Department,
Thessaloniki, Macedonia, Hellas (Greece)**

Coordinator:

Dr. Doz. Habil. Nikolaos K. Spyrou,
Professor of Astronomy,
Aristoteleion University of Thessaloniki
Former (2005-December 2010) ESA/PB-HME National Delegate of Greece

December 2010

A. Project Summary

1.Project Title :

UNESCO Chair on
Near-Earth Space Environment/ European Space Agency

2. Expected starting date : 01 May 2011

3. Duration : 3 years

4. Domain(s) or discipline(s) concerned :

Near-Earth Space Environment: Importance, Use, Preservation / *European Space Agency*: Importance, Activities, Cooperation, Benefits

5. Name of host institution(s)

Aristoteleion University of Thessaloniki / Astronomy Department

6. Faculty(ies) / Department(s) concerned

Aristoteleion University of Thessaloniki

Faculty of Sciences
School of Physics
Astronomy Department
Theoretical Mechanics Department
Department of Physics Applications and Environmental Physics-Laboratory of Atmospheric Physics
Department of Solid-State Physics-Material Physics Laboratory
Department of Nuclear Physics -Radiation Measurements Laboratory
Postgraduate School of Environmental Physics
Postgraduate School of Computational Physics

School of Chemistry
Department of Chemical Technology and Industrial Chemistry
School of Geology
Department of Meteorology and Climatology
Department of Physical and Environmental Geography
School of Informatics
Department of Artificial Intelligence and Information Analysis
School of Biology
Department of Botany
Department of Genetics Development and Molecular Biology
Department of Ecology

Polytechnic Faculty
School of Civil Engineering
Department of Hydraulics and Environmental Engineering
Department of Geotechnical Engineering

Faculty of Medicine

Department of Radiology, Medical Physics and Informatics
Department of Anatomy and Pathological Anatomy/ Laboratory of Histology-Embryology and Anthropology
Department of First Pulmonary Medicine, General Hospital "Papageorgiou"

Faculty of Theology
School of Pastoral and Social Theology

Faculty of Psychology
Department of Experimental Psychology
Department of Evolutionary Psychology
Department of Social and Clinical Psychology
Post Graduate School of Social and Clinical Psychology
Post Graduate School of Social-Clinical-Psychology and Psychosocial Problems

7. **Executing institution**

Aristoteleion University of Thessaloniki / Astronomy Department

8. Project leader/contact person (name):

Full contact address/telephone/fax/e-mail:

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9. Partners

-Hellenic National Commission for UNESCO
-UNESCO Chair on Education for Human Rights and Peace/Thessaloniki
-UNESCO Chair on Education for Natural Hazards/ Athens
-European Space Agency/Programme Board: Human Spaceflight,
-European Space Technology Centre (ESTEC)
-European Astronauts Centre
-International Academy of Astronautics
-International Astronautical Federation
-Chair of Space Sciences/Academy of Athens
-Chair of Atmospheric Physics and Climatology/Academy of Athens
-General Secretariat for Research and Technology/Ministry of Education
-Dublin Institute for Advanced Studies (Dublin, Ireland)
-National and Kapodistrian University of Athens/ Faculty of Geology/ Laboratory of Atmospheric Physics and Climatology
-National Observatory of Athens
Institute of Astronomy and Astrophysics
Institute of Space Applications and Remote Sensing
-Greek Aerospace Medical Association and Space Research

Scientists from institutions of neighboring developing and transition countries (Albania, Bulgaria, Romania, Turkey, Egypt). (See also Section C below).

The Chair will be open to participation of other interested partners.

10. Total budget (US$) 97000

11. Funding sources – Organizations and sum of money

In cash:

Aristoteleion University of Thessaloniki US$ 60000
General Secretariat for Research and Technology/Hellenic Ministry of Education, Life-long Learning, and Religion US$ 25000
Others US$ 10000

In kind: Aristoteleion University of Thessaloniki US$ 2000

12. Summary

The content of the proposed UNESCO Chair is composed of two closely related parts, namely, the *Near-Earth Space Environment (NESE)* and the world-known organization *European Space* A*gency (ESA).*

The first part refers to a new kind of environment, little known worldwide. This is the region above Earth at heights between a few hundreds kilometres up to a few ten thousands kilometres, which is in close mutual interaction with Earth and mankind. Currently, NESE is the place of every-day work in space, and, soon and inevitably, will become the place we shall live. In this region a lot of objects, mainly man-made but also natural, are fastly moving, and, in their great majority, they do not produce useful work but are simply *space debris*. All these objects can be dangerous, and contribute to the pollution and contamination of NESE, and, sooner or later, they all will enter the atmosphere of the Earth towards its surface.

The second part of the proposed UNESCO Chair,ESA, Europe's gate to space, originating from and based on the mutual collaboration of and the contributions from many European member-states and other non-European countries. ESA's activities are interdisciplinary, refer to research, technology, industry, and education, and their purpose and objectives are to improve the conditions of life on Earth.

The proposed UNESCO Chair on "Near-Earth Space Environment / European Space Agency", to be hosted at the Aristoteleion University of Thessaloniki, Thessaloniki, Greece, has the purpose for specialization with post-graduate studies on the various aspects and problems related to the use, importance, and the preservation of NESE, as well as its interaction with mankind, for the benefit of mankind and for the survival of the astronomical science. Also, the purpose of the new UNESCO Chair is to promote ESA in Greece an the nearby countries by emphasizing that the objectives of ESA is to continuously enhance and improve Europe's capability, and to guarantee that investment in space activities will be rewarding for the benefit of the citizens of Europe and all the world. Furthermore, through the teaching and lecturing in the context of the new UNESCO Chair, the necessary task will be undertaken for introducing the University of Thessaloniki and, in the long run, Greece into the space age, for informing the public on both ESA and NESE, and, in this way, to contribute to the national effort for the success of the official joining of Greece to ESA. Last but not least, the various activities of the UNESCO Chair are expected to be of help to the official space authority in Greece, the *General Secretariat for Research and Technology,* and also to *Greek State Scholarships Foundation* (IKY), in coordinating their multiple and diverse activities, as manifested currently.

The staff of the Faculties and Departments of the Executive Institution, the various Partners, as well as the interested scientists from neighbouring developing and transition countries involved, will be asked to participate to the interdisciplinary programme of the proposed new UNESCO Chair.

Typical topics of such an interdisciplinary thematic region, to be covered, in principle, contain the following:

- NESE as a typical environmental notion
- Astronomy as a typical environmental science, and NESE
- Mutual interaction of man and NESE and related benefits, problems, and dangers
- Exploitation of NESE
- Pollution and contamination of NESE of human origin
- Problems and dangers from NESE and from human activities in it, and necessary actions and measures
- Legal, economic, military, historical, and social problems related to NESE
- Protection and preservation of NESE: International cooperation and agreements
- NESE and Astronomy: The role and responsibilities of Astronomers
- Principles and history of spaceflights
- Artificial satellites: Types, uses, orbits, populations, increase and related problems
- Asteroids: Properties, orbital motions, distribution, exploration, exploitation, industrial uses
- Removal of artificial satellites and cleaning of the near-Earth space
- Study from space, with the aid of artificial satellites, of the Earth and planets and of their evolution: Remote sensing–Comparative Planetology-Exploration of the Solar System
- Planetary Astronomy and Planetotology
- Planetary Geology, chartography, and geologic mappings
- Geophysics and Geochemistry
- Space Materials
- Space Physics
- Heliosphere and space weather
- Phases of the Moon and planets
- Tides and consequences
- Twilight, atmospheric refraction, parallax, aberration of light, cosmic precession and mutation as space environmental phenomena
- Exobiology
- Space Medicine and Telemedicine
- Space technology and every-day applications
- ESA: History, structure, aims, importance, relation to other scientific disciplines
-The ESA European, American, and Russian Scientific and Technological ground Centres (ESA Hqs, ESTEC, ERASMUS, ESAC,

ESOC, DLR, CNES, ESRIN, EAC, ALTEC, BEOS, MSL, EPM, PFS, FSL, EDR, EuTEF, BUSOC, ASI, CSA, KOUROU, NASA, JAXA)
- The International Space Station
- The International Space Station as the typical place of peaceful international collaboration
- The European Space Laboratory “Columbus”
- The European Automated Transfer Vehicles (ATVs)
- The European Advanced Re-entry Vehicle (ARV)
- Research, technology, industry, education in and from NESE
- Life and Travel in Space
- The European Astronauts Corps and Centre
- Space Travels to Moon, Mars, Asteroids and beyond
- Current Programmes of ESA (Programmes on the ISS (ELIPS-3, Maxus, Dexus) Bed Rest, Other Research Programmes (Parabolic Flights), Mars 500, Concordia, Various student programmes (Spin Your Thesis, Drop Your Thesis))

B. Project Description

1. Type of project:

UNESCO Chair of studies of the Near-Earth Environment and of the active promotion of the activities, usefulness, and importance of the European Space Agency (in collaboration with the Greek Ministry of Education / General Secretariat of Research and Technology, and the Human Spaceflight Directorate of the European Space Agency)

2. Domain(s) or discipline(s)

The proposed UNESCO Chair on “Near-Earth Space Environment/ European Space Agency”, due to its multidisciplinarity, is directly related to many of the UNESCO domains, disciplines, and priorities, like e.g. Space Sciences, Earth Sciences, Civil Engineering, Education, Policy and Administration, Public Awareness. Quite indicatively, are described only the following ones:

A) NATURAL SCIENCES
1) Science Policy
2) Basic and Engineering Sciences: Science and Technology-Education
3) Space Activities: Space Education

B) ENVIRONMENT
1) Ecological Sciences: Man and Biosphere Programme
2) Earth Sciences: Earth Observations, International Geosciences Programme

Priority Areas: a) Science and Education, b) Disaster Preparedness and Mitigation: Natural Hazards-Cooperation in Disaster Risk Reduction

C) SOCIAL AND HUMAN SCIENCES
1) Ethics of Science and Technology
2) Social Transformations-MOST Programmes

D) COMMUNICATION AND INFORMATION
1) Access to Information
2)

AN INTERESTING NOTICE

OUT OF THE 669 UNESCO CHAIRS WORLDWIDE CURRENTLY, ONLY 39 OF THEM (A PERCENTAGE OF APPROXIMATELY 6%) BEAR IN THEIR TITLES THE WORD "ENVIRONMENT" AND IN NONE'S TITLE THE WORD "SPACE" APPEARS.

Context and justification

Structure of the UNESCO Chair

As mentioned already, the content of the proposed UNESCO Chair is composed of two closely related parts, namely, the *Near-Earth Space Environment (NESE)* and the world-wide known organization *European Space* A*gency (ESA).*

In both the above parts the undersigned presents rich experience. Actually, since the official joining of Greece with ESA (2005) and up to now (December 2010), he served as the National Delegate of Greece to the ESA/Directorate *Human Spaceflight, Microgravity and Exploration* (ESA/PB-HME; Details on the various activities of the National Delegate can be found in the site www.astro.auth.gr (Link: ESA Activities).

Also, the undersigned teaches, during the last fifteen or so years, at both the undergraduate and postgraduate University levels, the intersectional subject entitled “Problems of the Near-Earth Space Environment” and “Environmental Physics II”. According to the official “Handbook of the Physics Department” (Aristoteleion University of Thessaloniki), the syllabus of the above subjects is:

ENVIRONMENTAL STUDIES

4 Problems of the near-Earth Space Environment (E)

N. Spyrou

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PROBLEMS OF THE NEAR-EARTH SPACE ENVIRONMENT

Historical Introduction – Near-Earth space as typical notion of environment – Near-Earth Space Astronomy as typical environmental science – Basic principles and history of space flights – Artificial Satellites (types, orbits, uses, communication) – Populations of artificial satellites, their increase and related problems – Ground-based and space-born observations of the Earth-Comparative Planetology – Heliosphere and Space Weather – Phases of the Moon and planets – Tides and their results – Twilight, astronomical diffraction, parallax, aberration of light, cosmic precession and nutation as environmental problems – Pollution and contamination of the near-Earth space environment – Removal of artificial satellites and cleaning of the near-Earth space – Exploitation of the near-Earth

space – Mutual interaction of mankind and near-Earth space environment and related dangers – Cosmic collisions – Threats for Astronomy from near-Earth space and mankind's activities in it, and necessary measures – Problems related to the use of the near-Earth space: legal, economic, military, historical and social – Protection and preservation of the near-Earth space environment for future generations and Astronomy: International conventions and cooperation, responsibility and role of astronomers worldwide.

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TYPICAL COURSE ORGANIZATION OF THE GRADUATE STUDIES IN ENVIRONMENTAL PHYSICS

2nd Semester

4. Environmental Physics II *6-2* *3*

N. Spyrou

Importance of the UNESCO Chair

The socio-economic impact of space is rising continuously in Europe, Russia, USA, Japan and elsewhere. The space applications to every-day life are numerous and well-known, and refer to research, technology, industry, education, and space exploration. Space activities have started about fifty years ago. Since then, however, not only positive and useful results have emerged, but also negative ones, referring to the severe pollution and, occasionally, contamination of NESE. These are really severe problems, because the most interesting characteristic of NESE is its inability to adjust itself to the occasionally new conditions in it. So, the major importance of the new proposed UNESCO Chair is twofold. To promote, through ESA, the usefulness of NESE and of the human activities in it, and, to

contribute, in an essential way, to the global effort, necessary for the protection and preservation of NESE for the benefit of mankind and science, especially, the astronomical science. It is remarkable that these two objectives are somehow contradictory to each other, but this is one of the interesting characteristics referring to NESE.

Relevance of the UNESCO Chair

The relevance and importance of all the above become obvious for two additional reasons. The first reason is that it is in the nature of mankind to leave Earth, but, in doing so, we must have gone through NESE. The second reason is based on the interdisciplinarity of space and space activities. It must be emphasized that the European Space Laboratory "Columbus", already docked with the International Space Station till, at least, 2020, is a manifestation of the novel way "Space" is entering our every-day life, and, also, is changing the old beliefs and the old "status quo" in research, education, technology and industry.

Forthcoming Developments

What is not widely known today, is a very important and special collaboration between the *European Space Council*, the European *Parliament*, the *European Strategy Forum for Research Infrastructures (ESFRI)*, *the European Union Framework Programme,* and the *European Space Agency.* The objective of such a wide collaboration is the European Space Laboratory "Columbus", to be a **European Research Infrastructure** of the European Union, and the use of "Columbus", to be **Research Priority for Europe** in the 7th Framework Programme of the European Union, namely, at a pan-European level (Recall that the importance of this collaboration is verified by the fact that the USA and NASA have already, since 2005, declared the American Sector of the ISS as a "National Laboratory" for USA).

These developments constitute for ESA and the United Europe an important objective for both strategic and financial reasons, and will lead to the recognition of "Columbus" as the **scientific symbol of the Unified Europe.** In other words, "**what is done up there will**

specify both what will be done down here as well as its funding!!!"

Given the current bad economic conditions prevailing worldwide, quite naturally, there are and will be also other non interdisciplinary competitors of "Space", seeking for the, governmental and international funding.

It is easy to see that the interdisciplinarity of "Space", with its many facets, will be the **decisive factor** in the short- and long-range programmatic preparations, plans and prospects, of every government, concerning priorities, namely, scientific research, education, industry, and technology. These priorities, **if wisely decided,** could help in utilizing, in the best possible and productive way, all the opportunities offered by the European Union and the European Space Agency.

Therefore, sooner or later, every European, at least, government will confront the dilemma of to whom to give the governmental funding, taking into account that, in any case, the money available is limited and, also, it can not be divided to be given, effectively, to many recipients. As the undersigned has repeatedly emphasized orally and in written, **under the present circumstances, the governmental money must be directed towards, mainly, "Columbus", ISS, and ESA.**

In facing this **war "ante portas",** we shall *have to be well informed and prepared.* A cautious national policy in favor of the notion "Space" will be consistent to the previously described prospects for "Columbus", and this refers to the government (Ministry of Education and Life-Long Learning/General Secretariat for Research and Technology), the Universities, the "Greek State Scholarships Foundation" (IKY), the Academy of Athens, and the relevant Scientific Unions.

From all the above it becomes obvious that, at least in the University of Thessaloniki, there are scattered a lot of colleagues working on various aspects of "Space". One of our purposes will be to, somehow, "synchronize" all of them, something that, I hope, can

really be done with the help of, among others, the University of Thessaloniki, the Academy of Athens, and, mainly, the General Secretariat of Research and Technology.

In the region of South-East Europe and the East Mediterranean there are countries, quite diversified in their cultures, protocols, and social and political development. Their societies and economies are in a transition phase, and therefore all the above mentioned positive and negative aspects of NESE and ESA and human space activities in it, naturally, are of great interest to them for their development.

Studies in space and human activities in it involve different scientific disciplines in close mutual collaboration. International co-operation for capacity building in developing countries and promotion of knowledge, innovation and education are of great importance for the promotion and use of the results of human space activities.

Role and Objectives of the UNESCO Chair

The proposed Chair will be the focal point on NESE and ESA in a developing region, centered in Greece and the Balkans and reaching the ex-Soviet Union and Middle East countries, in close collaboration with the Greek State, as well as the European Union and ESA. The Chair will involve various scientific and technological disciplines related to NESE and ESA. Especially, the six year experience of the undersigned as the National Delegate of Greece to the European Space Agency (ESA)/ Directorate "Human Spaceflight, Microgravity, and Exploration", indicates that the main objectives of our country, as a member-state of ESA and EU should be

1) the use and exploitation of all the opportunities offered to us by the International Space Station and, especially, the European Space Laboratory "Columbus", already docked with the International Space Station, and the various programmes of ESA,
2) the full use by the Greek academic community (staff and students) and industry of the ambitious "European Life and Physical Sciences" (ELIPS) programme, and other programmes, and

3) the full use and exploitation of the freely accessible and diverse educational material of the European Space Agency(ESA), for all levels of education.

The objectives of the Chair will be met by combining research efforts from many disciplines, integrating and adding value to information from a wide range of projects and performing focused high-quality research on areas with severe knowledge gaps.

3. Objectives :

Development objective (long-term)

- To promote an integrated interdisciplinary system of research, training, information and development activities in the fields of NESE and ESA at an international level.
- To promote community development and capacity building in all these subjects through education and training with traditional curricula, distance learning and 'hands on' training.
- To enhance opportunities to develop sub-regional and regional cooperation networks (information exchange) based at the coordinating institution in understanding and informing on NESE sand ESA.

Specific objectives- not exceeding 4 (short-term)

- To encourage and facilitate the active participation of the teaching and research staff and students of the University of Thessaloniki, Northern Greece, and other institutions, in Greece and abroad, in the implementation of relevant UNESCO activities.
- To develop twinning and other linking arrangements among universities in Europe with special emphasis to the Balkan,

South-East Europe and Mediterranean region and countries with limited capabilities in this field.

- To develop programmes for interdisciplinary graduate and postgraduate studies.
- To foster advanced teaching and research, to facilitate the exchange of scientists and to increase the availability of outstanding specialists within the participating institutions.

4. Type of activity (several types of activities can be included):

Postgraduate teaching program [x]
Short-term training [x]
Research [x]
Visiting professorships [x]

5. Target beneficiaries :

Students [x]
Academics [x]
Professionals in development fields [x]

6. Expected output / results :

- Trained postgraduate students will get acquainted with modern research and management principles in the fields of NESE and ESA.
- Exchange of knowledge and information between institutions about the state of the art research, capacity building of the partners and development of common research projects.
- Exchange of experiences among experts of governmental and local environmental and development institutions.
- Dissemination of scientific knowledge in less developed countries.
- Strengthening links with UNESCO towards the establishment of a UNESCO Centre of Excellence on NESE and ESA matters.

7. Implementation Strategy – How the project will be implemented?
a. management

- ✓ The Chairman will be the coordinator of all chair activities.
- ✓ The **scientific steering committee** will aim to develop and spread the activities of the Chair. An effort will be made for them to meet at regular intervals.
- ✓ The Chair secretariat for administrative support of the Chair.

b. capacity building

Together or separately, the cooperating parties seek the funding needed for the undertaking of projects selected and established through mutual agreement. After all, training people become more competitive to attract funds.

c. sustainability

i. linkages with other relevant activities at institutional, national, regional and international levels.The proposed activities will be linked with similar graduate courses and related research projects.

ii. how benefits will be sustained?

The benefits gained will be sustained a) by the strong links among the scientists of the involved institutions and the build-up of international collaborations and exposure, b) with the raising of public awareness and interest of the policy makers and c) through the eventual funding from participation in national, European and international research projects.

d. knowledge sharing

The knowledge acquired will be shared among the participating scientists and students and the public as well among countries.

8. Proposed schedule of major activities :

(There should be a clear link between the activities and the objectives to be achieved. The schedule should show activities, timing and expected outcomes)

Activity	Time period
Activity 1: Staffing and documentation of the Chair, communication with similar units in East Mediterranean Sea and EU universities and organizations	May-December 2010
Activity 2: Training programs with students and staff	October – May every year
Activity 3: Workshops, conferences	Twice a year
Activity 4: Projects developed by the Chair	2011- 2013
Activity 5: Exchange of scientific visits	2011- 2013

Training programmes (courses):

Yearly proper choice from the following list of training programmes (See also Section 12 (Summary)):

-Near-Earth space as typical notion of environment

- Near-Earth Space and Astronomy as typical environmental science

- Basic principles and history of space flights

-Artificial Satellites (types, orbits, uses, communication)

-Populations of artificial satellites, their increase and related problems

-Ground-based and space-born observations of the Earth-Comparative Planetology

-Heliosphere and Space Weather

-Phases of the Moon and planets

-Tides and their results

-Twilight, astronomical diffraction, parallax, aberration of light, cosmic precession and mutation as space environmental problems

-Pollution and contamination of the near-Earth space environment

-Removal of artificial satellites and cleaning of the near-Earth space

-Exploitation of the near-Earth space

-Mutual interaction of mankind and near-Earth space environment and related risks and dangers

-Cosmic Collisions

-Threats for Astronomy from near-Earth space and from mankind's activities in it, and necessary measures

-Problems related to the use of the near-Earth space: legal, economic, military, historical and social

-Protection and preservation of the near-Earth space environment for future generations and Astronomy

-International conventions and cooperation, responsibility and role of astronomers worldwide.

-Exobiology

-Space Medicine

-Space technology and every-day applications

-ESA: History, structure, aims, importance, relation to other scientific disciplines

- The International Space Station

- The International Space Station as the typical place of peaceful international collaboration

- The European Space Laboratory "Columbus"

- The European Automated Transfer Vehicles (ATVs)

-The European Advanced Re-entry Vehicle (ARV)

- Research, technology, industry, education in and from NESE

- Living in Space

- The European Astronauts Corpse and their Centre

- Space Travels to Moon, Mars, Asteroids and beyond (Feuerbacher)

- Current scientific programmes of ESA

Projects:

Near-Earth Space Environment: Importance, Problems, Preservation

European Space Agency: History, Structure, Activities Importance, Benefits

Mobility Grants

IKY/ESPA-SPACE PHYSICS fellowships
GSRT-IKY-ESA fellowships
ESA Science and Applications Division
Marie Curie fellowships
Private Sponsors

C. Partnerships / Networking – UNITWIN Programme encourages partnerships (North-South,South-South) among institutions of higher education, NGOs, foundations and public and private sector organizations or businesses.

1. Participating institutions (name and address of each)
Confirmed :

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The staff of the above seven departments of the School of Physics, University of Thessaloniki (along with all the rest of the departments mentioned in Section 6 and the Partners mentioned in Section 9) will participate in the Chair activities. These departments carry out high quality research in the fields of Astronomy, Astrophysics, Cosmology, Relativity, Theoretical Mechanics, Motions in the Solar System, Space Physics, Remote Sensing, Geology, Meteorology, Climatology, Biology, Space Materials, Chemistry, Engineering, Medicine, Aerospace Medicine, Psychology. Also, the European Space Agency/Programme Board: Human Spaceflight, Microgravity and Exploration, The European Space Technology Centre (ESTEC), The European Astronauts Centre, the International Academy of Astronautics and the International Astronautical Federation will participate in the corresponding thematologies.

Proposed:

ESA/PB-HME and ESTEC (Dr Simonetta Di Pippo,
Director ESA/HSF, ESTEC , simoneta.di.pippo@esa.int)

European Astronauts Centre(Dr Michel Tognini, Director,
Michel.Tognini@esa.int)

UNESCO National Commission of Greece

UNESCO Chair on Education for Human Rights and Peace /Thessaloniki (Professor Emeritus D. Papadopoulou, Tel. +30 2310 995311, unesco@mfa.gr)

UNESCO Chair on Natural Hazards/Athens (Professor C Zerefos Tel. +30 210 995311, zerefosunesco@mfa.gr)

General Secretariat for Research and Technology/Ministry of Education,(secgenof@gsrt.gr)

Chair of Space Sciences/Academy of Athens (Professor S. Krimigis, Tom.Krimigis@ jhuapl.edu)

Chair of Atmospheric Physics and Climatology/Academy of Athens (Professor C. Zerefos, zerefos@geol.uoa.gr)

International Astronautical Federation (Professor B. Feuerbacher, Berndt.Feuerbacher@dlr.de)

International Academy of Astronautics (Professors S. Krimigis and C. Zerefos)

National and Kapodistrian University of Athens/ Faculty of Geology/ Laboratory of Atmospheric Physics and Climatology (Professor C. Zerefos, zerefos@geol.uoa.gr)

National Astronomical Observatory of Athens
Institute of Astronomy and Astrophysics (Professor C.Goudis, cgoudis@astro.noa.gr)
Institute of Space Applications and Remote Sensing (Dr I. Daglis, daglis@ space.noa.gr)

Dulbin Institute for Advanced Sudies (Professor Dennis O' Sullivan, dos@cp.dias.ie)

Greek Aerospace Medical Association and Space Research (Dr C.Kourtidou-Papadeli, papadc@otenet.gr)

D. Funding of the Project

1. Total project budget

Type of cost	AUTH	Other sources
Staff costs		
Administrative tasks	10.000	
Academic tasks	30.000	
Equipment and Documentation	5.000	
Other costs		
Travel: 1.Organization of the Chair 2. Documentation for the Chair	2.500 1.500	2.500 2.500
Publications	1.000	5.000
Projects and mobility grants	10.000	25.000
Consumables for technical & secretarial services, communications	2.000	
OVERALL TOTAL	62.000	35.000

2. Contribution of your institution

Budgetary provision (in US$) 60000

In-kind services (in US$) 5000

3. Extra-budgetary resources to be mobilized

Potential funding sources

- ✓ General Secretariat for Research and Technology/Hellenic Ministry of Development (GSRT). Communication with GSRT has been established in order to explore the possibilities for obtaining, in the future, some kind of funding for Chair activities.

- ✓ ESA and EU projects can provide limited support from networking and educational activities of running projects or research projects that the Chair will participate in the submission and execution.

- ✓ ESA/ESPA-IKY-GSRT, IKY, and MARIE CURIE fellowships for mobility grants

- ✓ Private Sector (donors or companies interested in developing technology in the area of NESE and ESA)

E. Support

Institutional

Please note that the project should be presented by the vice-chancellors, rectors, president of the participating institutions

The Aristoteleion University of Thessaloniki is biggest university in Greece, and one of the biggest in the South-Eastern Mediterranean, specializing in most of modern scientific areas (www.auth.gr). Also, the Astronomy Department is one of the most scientifically active and productive departments of the School of Physics of the Aristoteleion University of Thessaloniki. From the financial point of view, it is foreseen that the Aristoteleion University of Thessaloniki and the Department of Astronomy, could undertake the cost of this UNESCO Chair, which includes the consumables for training and the extra hours of staff and professors. The Aristoteleion University of Thessaloniki and the Department of Astronomy cannot cover travel cost of visiting scholars and postgraduate students,

although it could cover, in a limited way, accommodation cost. For this reason the Chair will seek funding outside the Aristoteleion University of Thessaloniki.

UNESCO National Commission plays a vital role in the UNITWIN Programme and should be a partner in the national discussions on the proposal for a UNESCO Chair or network

UNESCO National Commission of Greece has been contacted and discussions on the proposal submission have been done.

F. Evaluation and reporting

Indicators of progress and the measures to ensure evaluation and annual reporting of project performance to UNESCO will be executed in collaboration with UNESCO National commission, the Aristoteleion University of Thessaloniki, and the General Secretariat for Research and Technology in Greece.

Annual reports in 2011, 2012 and final report in 2013. Evaluation by the students will be included.

G. Visibility

Please indicate how the activities of the project will be given visibility – websites, brochures, publications, et c.

- ✓ Internet-based project dissemination (web sites, electronic newsletters, discussion groups)

- ✓ Publications (publicity material for universities, researchers, governmental agencies, conference papers, scientific papers, presentations in the media)

- ✓ Data distribution (restricted or public via web sites)

- ✓ Workshops and conferences (scientific, technical training and capacity-building with participants from developing countries, for policymakers)

- ✓ Internet-based education and training (complement to summer schools and capacity-building workshops)

- ✓ Postgraduate training and staff exchange programs (hands-on approach to models and measurement equipment, share inter-disciplinary approaches to complex problems)