

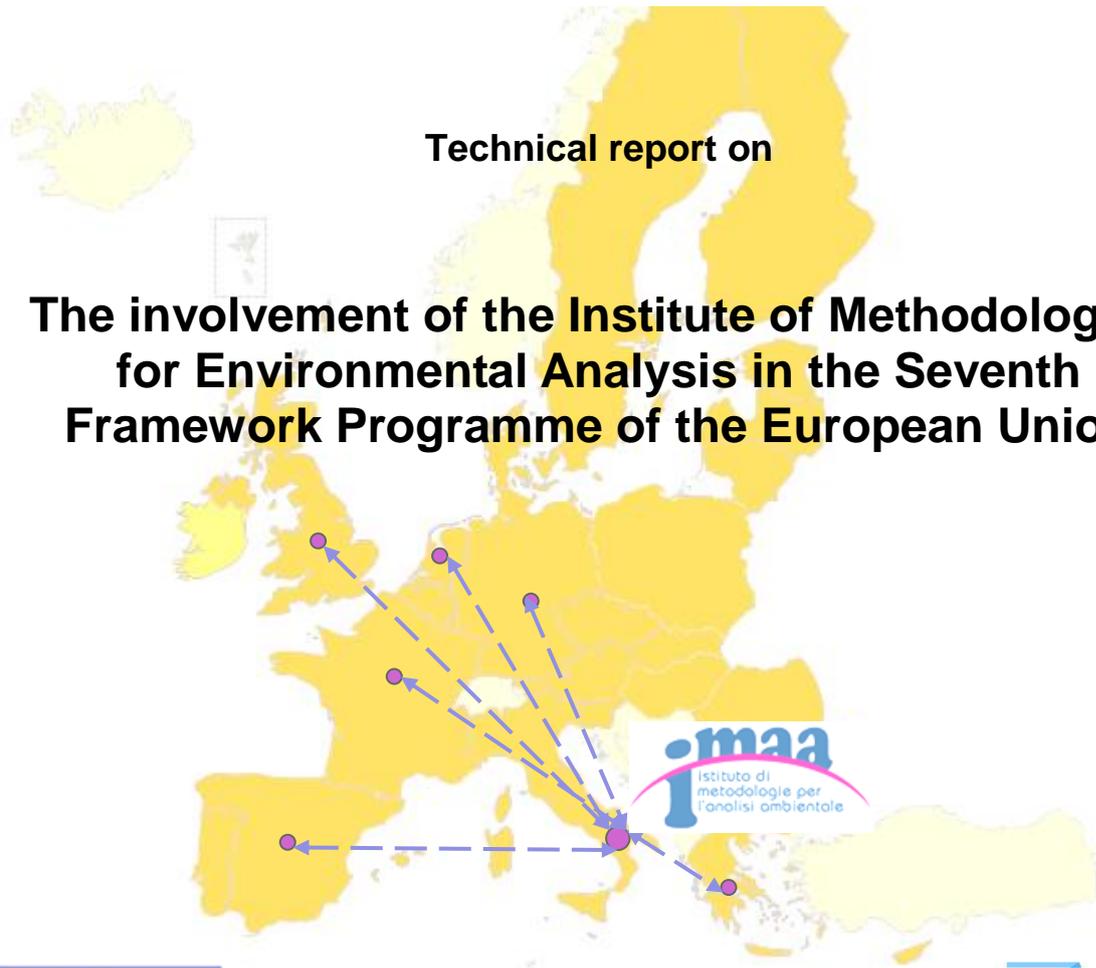


National Research Council of Italy

Institute of Methodologies for Environmental Analysis

Technical report on

The involvement of the Institute of Methodologies for Environmental Analysis in the Seventh Framework Programme of the European Union



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List of the acronyms

CA	Coordinating or networking actions
CP	Collaborative Projects
CSA	Coordination and Support Actions
ENV	Environment
ICT	Information and Communication Technologies
INCO	Activities of International Cooperation
INFRA	Infrastructures
ITN	Marie Curie Initial Training Networks
LS IP	Large Scale Integrated Projects
NMP	Nanosciences, nanotechnologies, materials and new production technologies
REGIONS	Regions of Knowledge
REGPOT	Research Potential
SEC	Security
SPA	Space
SA	Support Actions
STREP	Small or medium-scale focused research project
TPT	Transport

Abstract

The Seventh Framework Programme (FP7) was concluded and some important considerations about the participation to the FP7 can be formulated. This report is focused on the description of the projects coordinated by the Institute of Methodologies for Environmental Analysis (IMAA) of the National Research Council (CNR) of Italy or involving it as a partner, within the Seventh Framework Programme. CNR-IMAA was involved both as participant and coordinator in 28 projects approved under the European Framework Programmes, 21 of these under the Seventh FP and 7 under the Sixth FP.

The total amount of the European contribution of the FP7 projects with the participation of IMAA is about 4 million Euro. The CNR-IMAA research activities have been focused on different themes of the Seventh Framework Programmes, and mainly on Space, Environment, Energy, Information and Communication Technologies and Security.

A particular focus has been dedicated to a number of successfully projects, which have contributed to enhance the scientific competitiveness of the Institute, to favour the technological transfer and the cooperation with the Small and Medium Enterprises (SME), to promote the mobility of researchers in Europe. CNR-IMAA is Coordinator of ACTRIS, a 4-year project funded under Infrastructure in Capacities, which aims at integrating three existing research infrastructures EUSAAR, EARLINET, CLOUDNET, and a new trace gas network component into a single coordinated framework project. Besides that, CNR-IMAA plays a relevant role in the involvement of the small and medium enterprise located in Basilicata region in some important FP7 projects. SMEs have benefited of about 1,8 million of Euros, thanks to the synergic collaboration that the CNR-IMAA has established with them. In particular the projects ISTIMES, DORIS and MODELPROBE have led to a positive transfer of know-how and technologies between the CNR-IMAA and the SMEs, testified by the high-level products and results. As regards the mobility of researchers, CNR-IMAA participates in ITARS, a 4-year project funded under People, which aims to foster training and further development in the area of remote sensing of the atmosphere, through a network of universities, research organisations and high-tech companies from different disciplines.

The results coming from this report show that IMAA's researchers have a good ability to attract European funding and have prepared the ground for a hopeful participation in the new current European Research and Innovation Programme HORIZON 2020. The recent results seem to confirm this positive challenging trend, as up to now, IMAA has already recorded 3 projects approved, out of which 2 have the Coordination played by IMAA. The first project called GAIA-CLIM was funded under the call EO-3-2014 'Observation capacity mapping in the context of Atmospheric and Climate change monitoring'. The second one called ACTRIS-2, coordinated by IMAA, was funded under the call INFRAIA-2014-2015 "Integrating and Opening Research Infrastructures of European Interest". ENVRIPLUS, coordinated by IMAA, was funded under the call INFRADEV4-2014-2015 "Developing new world-class research infrastructures".

In the Annex A, a brief description of each project is provided specifying the type of funding scheme, the role of the institute, the duration, the actual status of the project, the project cost, the content and the website address.

The participation of Italy in the FP7

The Sixth Monitoring Report realized by the European Commission shows that, for the period 2007-2012, 379 concluded calls received more than 113.000 proposals, out of which more than 103.000 – involving more than 485.000 applicant organisations and individuals – were included in the evaluation procedure, and more than 20.000 – involving more than 105.000 participants – were finally retained for negotiations, with a corresponding requested EU funding of € 32,8 billion. Proposals and applicants had an average success rate of 19% and 22% respectively [1]. These considerations are based on data extracted from E-CORDA in February 2013.

The amount of signed grant agreements and participants for FP7 calls concluded during the period 2007-2012 is shown in Figure 1.

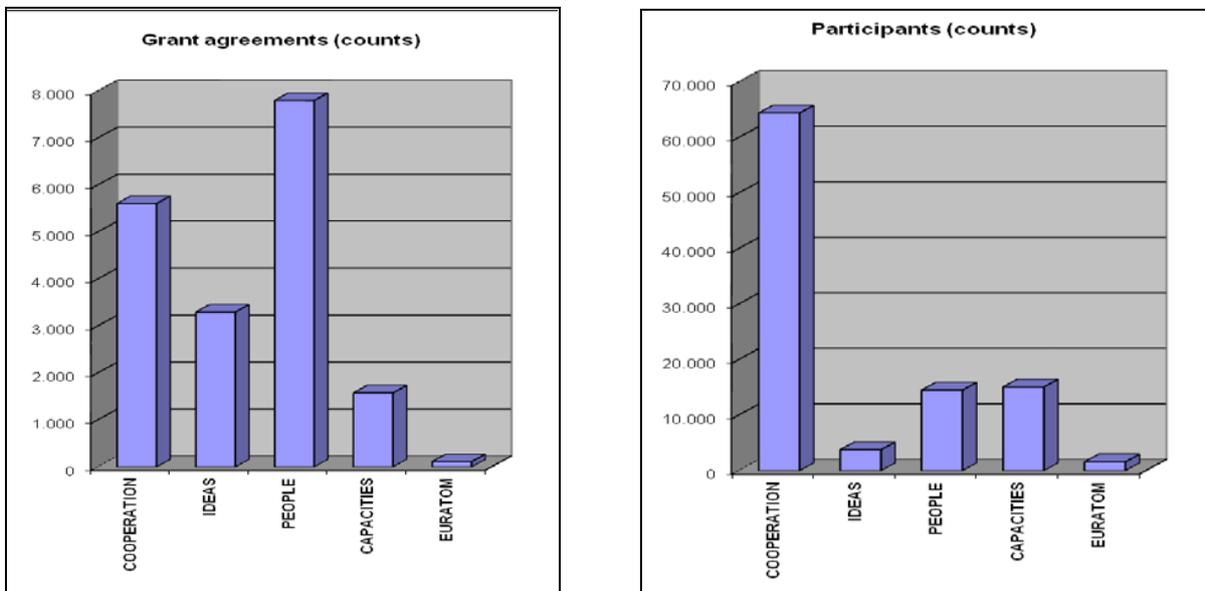


Figure 1 - Numbers of signed grant agreements and participants for FP7 calls concluded during the period 2007-2012 (as of February 2013).

In Figure 2, average success rates of applicants and requested EU financial contribution for FP7 calls concluded during the period 2007-2012 is shown by each EU27 Member State.

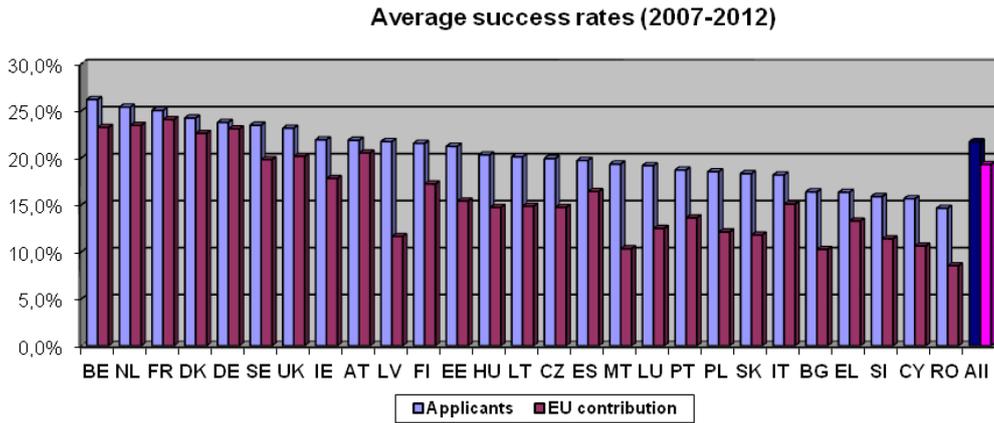


Figure 2 – Average success rates of applicants and requested EU financial contribution for FP7 calls for EU27 Member State

Italy obtained an EU contribution of about 8.43% of the total budget, which is 9.46% compared to the budget assigned only to the EU27 Member States [2]. Italian participants involved in the proposals are 43697 distributed into 24760 proposals, so, on the basis of number of participants, Italy is in the first positions after Germany and United Kingdom. As regards the Coordination of proposals submitted, Italy is at the top of the list, but if we consider the success rate, it is little below the “average value”, recording a success rate of about 12.3% [2]. It is important to note that these data are to be updated on the basis of the next official reports on FP7 participation.

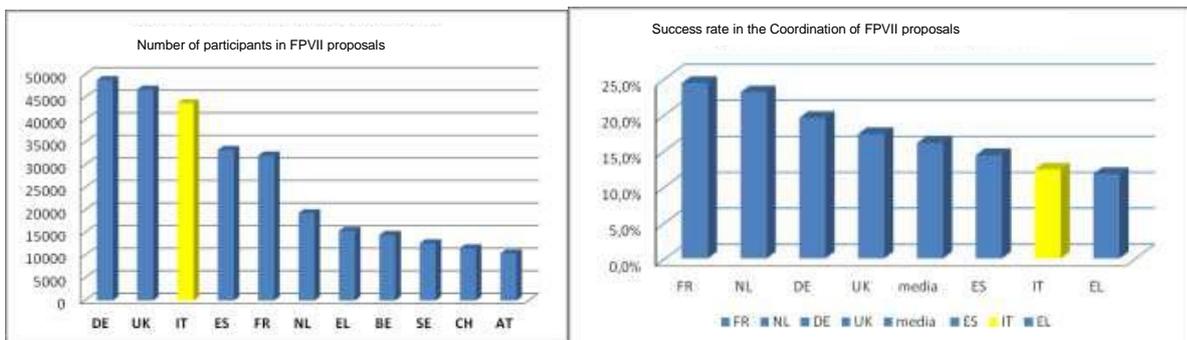


Figure 3 – Number of participants in FP7 proposals and success rate in the Coordination of FP7 proposals [2]

The participation of the National Research Council of Italy in the FP7

Among the top 50 participants Research organisations (REC) with the highest numbers of participations in FP7 signed grant agreements during the period 2007-2011, the National Research Council of Italy (CNR) is at the 3th place of the REC

rank and at the 4th place out of the overall rank [1]. The top 50 research organisations represent 16 countries (12 Member States, the JRC of the European Commission and 3 Associated Countries), the highest number comes from France (9), Italy (7) followed by Germany (6) and Greece (5). CNR comes only after the Centre National de la Recherche Scientifique (FR) and the Fraunhofer-Gesellschaft (DE). The recent available data (September 2013) pointed out that CNR was involved in 645 projects (<http://www.attivitaeuropee.cnr.it/progetti-cnr-nel-7%C2%B0-programma-quadro>). In 25% of these, the CNR has played the role of Coordinator [3].

Most of FP7 funded projects fall in the Cooperation area, specifically in Information Communication Technologies, then in Nanosciences projects and finally Environment projects, with a total European contribution of 216 millions of Euros (Figure 4).

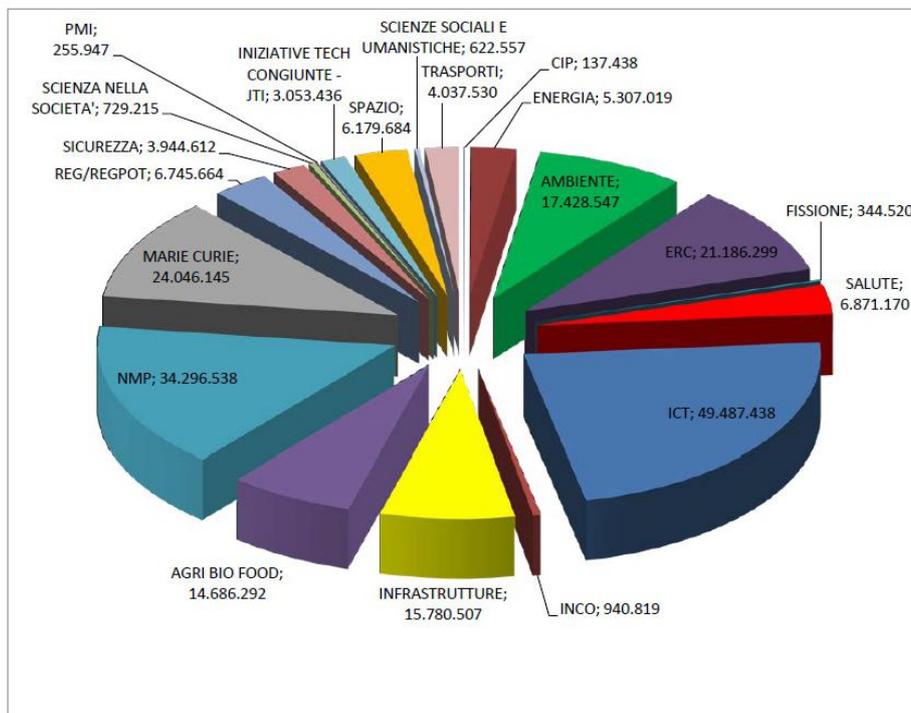


Figure 4 – Projects of CNR in FP7 (<http://www.attivitaeuropee.cnr.it/partecipazione-del-cnr-alle-attivita-del-settimo-programma-quadro-di-ricerca-2007-2013-ancora-corso>)

In this framework, the Institute of Methodologies for Environmental Analysis (IMAA) of the National Research Council (CNR) of Italy has been actively contributing to the increase and positioning of the participation of the National Research Council of Italy in the European Framework Programmes.

Participation of CNR-IMAA in the European Framework Programme

Notwithstanding CNR-IMAA is a young Institute, since it was constituted in 2002, IMAA has been involved in European research programmes as a partner and in most of the cases as coordinator of research streams in the Framework Programmes and in other International Research Programmes. In the European Framework Programmes, there are n. **28 projects**, 21 of these under the Seventh FP and 7 under the Sixth FP.

The CNR-IMAA research activities were mainly focused on the Cooperation Programme, followed by Capacities and then People (Figure 5). In Capacities the projects were funded in Infrastructure (INFRA) and in Research Potential (REGPOT); in People, the project was funded as Marie Curie Initial Training Networks.

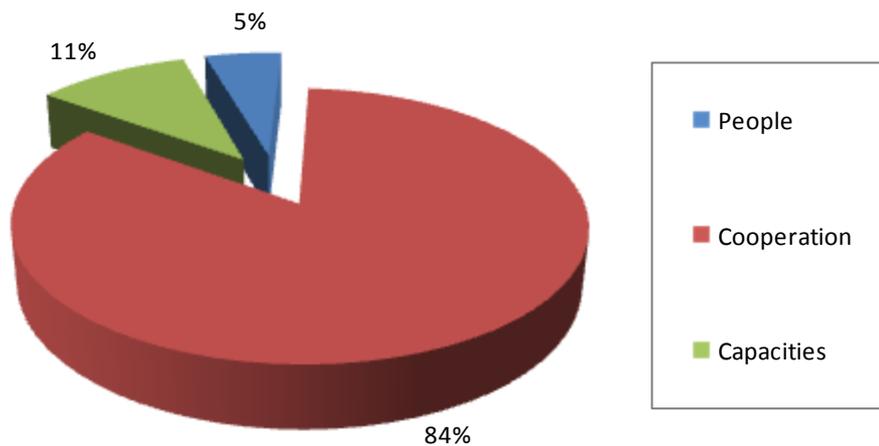


Figure 5 – Distribution of FP7 projects of CNR-IMAA

In Cooperation, the main themes were Space and Environment, followed by Energy, Information and Communication Technologies, Security and Transport (Figure 6).

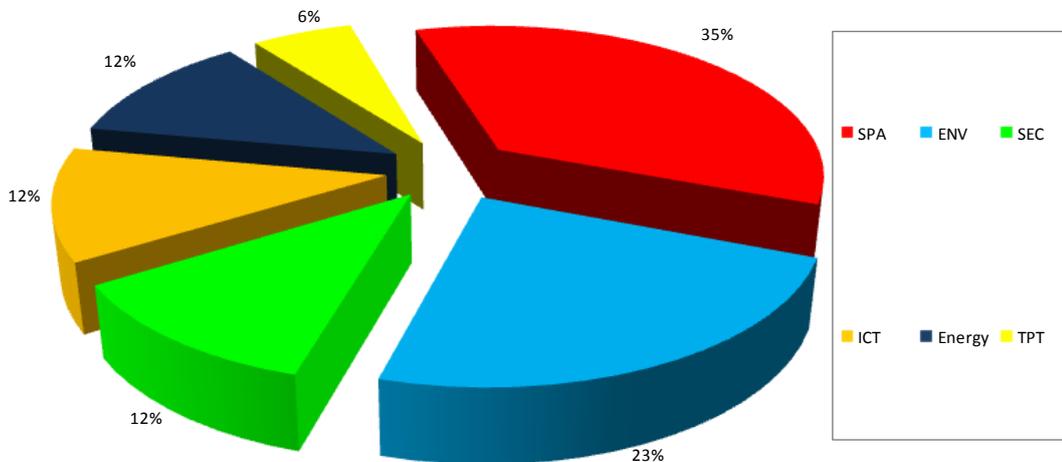


Figure 6 – Distribution of FP7 projects of CNR-IMAA in Cooperation.

In Figure 7 the projects are grouped by type of funding scheme.

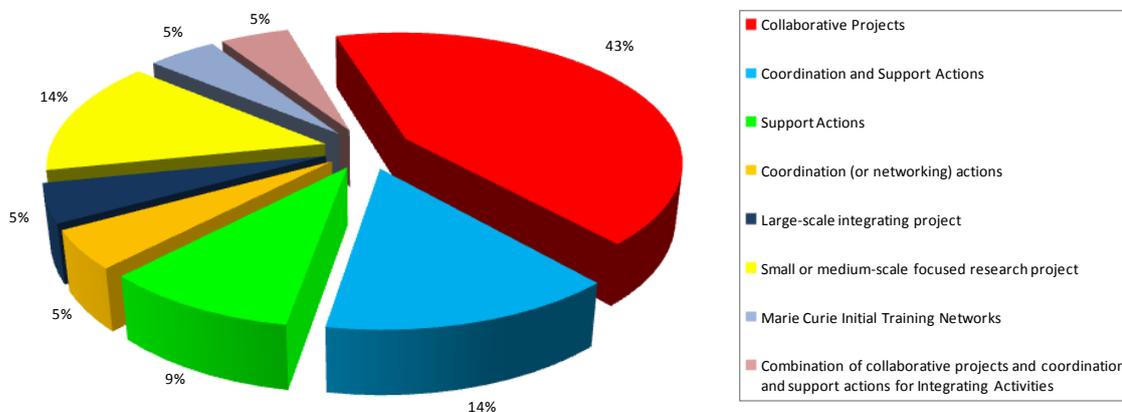


Figure 7 – FP7 projects of CNR-IMAA grouped by funding scheme.

Most of projects were funded according to the funding scheme “Collaborative Projects”, followed by the “Coordination and Support Actions” and by the “Small or medium-scale focused research project”. The rest of the projects was funded by the other funding schemes, such as the “Support Actions”, “Coordination actions”, “Large-scale integrating project”, “Marie Curie” and the combination of “Collaborative and Coordination and Support actions”.



The list of the projects of CNR-IMAA funded by the European Union in the Seventh Framework Programme is reported in the following table n.1.

Table 1 – List of CNR-IMAA project funded within the Seventh Framework Programme.

N.	Project Acronym	Project Title	Project Start Date	Project End Date	STATUS	Project Funding Scheme	Project Program	Participant Role
1	ACTRIS	Aerosols, Clouds, and Trace gases Research Infrastructure Network	01/04/2011	31/03/2015	Completed	CP-CSA	INFRA	Coordinator
2	BEYOND	Building Capacity For a Centre of Excellence for EO-based monitoring of Natural Disasters	01/06/2013	31/05/2016	In progress	CSA-SA	REGPOT	Participant
3	DORIS	Ground Deformations Risk Scenarios: an Advanced Assessment Service	01/10/2010	30/09/2013	Completed	CP	SPA	Coordinator (together with CNR-IREA and CNR-IRPI)
4	DORIS_NET	Downstream Observatory organized by Regions active in Space network	01/02/2011	31/01/2013	Completed	CSA	SPA	Participant
5	EGIDA	Coordinating Earth and Environmental cross-disciplinary projects to promote GEOSS	01/09/2010	31/12/2012	Completed	CA	ENV	Coordinator
6	ELITE	ELICIT TO LEARN CRUCIAL POST-CRISIS LESSONS	01/01/2013	30/06/2014	Completed	SA	SEC	Participant
7	ERMES	An Earth observation Model based RicE information Service	01/03/2017	29/02/2020	To be started	CP FP-STREP	SPA	Coordinator
8	EUROGEOSS	European approach to GEOSS	01/05/2009	30/04/2012	Completed	LS IP	ENV	Participant
9	GEOVIQUA	QUALity aware VISualisation for the Global Earth Observation system of systems	01/02/2011	31/01/2014	Completed	STREP	ENV	Participant
10	GIGAS	GEOSS Inspire and GMES an action in support	01/06/2008	31/05/2010	Completed	CSA	ICT	Participant
11	G-MOSAIC	G-MOSAIC GMES services for management of operations, situation awareness and intelligence for regional crises	01/01/2009	31/03/2012	Completed	CP	SPA	Coordinator
12	IMAGE	Integrated Methods for Advanced Geothermal Exploration	01/11/2013	31/10/2017	In progress	CP	Energy	Participant
13	ISTIMES	Integrated System for Transport Infrastructures surveillance and Monitoring by Electromagnetic Sensing	01/07/2009	30/06/2012	Completed	CP	SEC	Coordinator
14	ITARS	Initial Training for Atmospheric Remote Sensing	01/04/2012	31/03/2016	In progress	ITN	People	Participant
15	LAMPRE	LAndslide Modelling and tools for vulnerability assessment Preparedness and REcovery management	01/03/2013	28/02/ 2015	Completed	STREP	SPA	Coordinator (together with CNR-IREA and CNR-IRPI)

	Project Acronym	Project Title	Project Start Date	Project End Date	STATUS	Project Funding Scheme	Project Program	Participant Role
16	MODELPROBE	Model driven soil probing, site assessment and evaluation	01/06/2008	31/03/2012	Completed	CP	ENV	Participant
17	REACCESS	Risk of energy availability: common corridors for Europe supply security	01/01/2008	31/12/2010	Completed	CP	Energy	Participant
18	SAFER	Services and applications for emergency response	01/01/2009	31/03/2012	Completed	CP	SPA	Participant
19	SAGRES	Services Activations for GRowing Eurosur's Success	01/01/2013	31/12/2014	Completed	STREP	SPA	Participant
20	UNCERTWEB	The Uncertainty Enabled Model Web	01/02/2010	31/01/2013	Completed	CP	ICT	Participant
21	WEZARD	Weather hazards for aeronautics	01/07/ 2011	30/06/ 2013	Completed	SSA	TPT	Participant

A brief description of each project is provided in the *Annex A*, specifying the type of funding scheme, the role of the institute, the duration, the actual status of the project, the project cost, the content and the website address.

The European contribution of all FP7 projects in which CNR-IMAA is involved is about **4 million Euro**. It is important to point out that the small and medium enterprises, located in Basilicata region and working jointly with CNR-IMAA, have benefited of about **1,8 million** of Euros, thanks to the synergic collaboration that the CNR-IMAA has established with them. In particular the projects ISTIMES, DORIS and MODELPROBE have led to a positive transfer of know-how and technologies between the CNR-IMAA and the SMEs, testified by the high-level products and results.

In the frame of the technology transfer, CNR-IMAA is strongly involved in the promotion and dissemination of the Framework Programme initiatives through the involvement in APRE “Agency for the Promotion of the European Research” (www.apre.it). APRE has different information points distributed in each region of Italy and the Basilicata one is located at Research Area of CNR, at TeRN Consortium. The close and strong collaboration between CNR-IMAA and TeRN has led to different positive initiatives and a larger involvement of researchers and entrepreneur in FP research projects.

Focus on the main projects of CNR-IMAA

Among the several successfully projects carried out by the researchers of CNR-IMAA, a particular focus has been dedicated to a number of projects, which have contributed to enhance the scientific competitiveness of the Institute, to favour the technological transfer and the cooperation with SMEs, to promote the mobility of researchers in Europe.

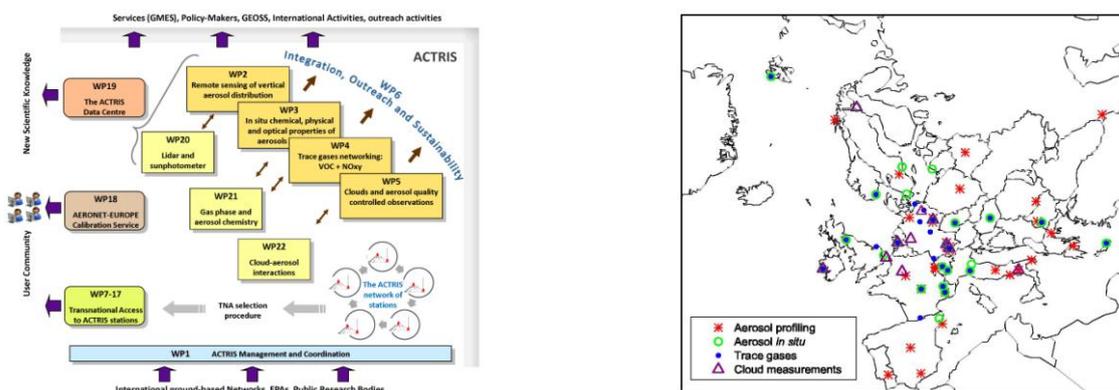
ACTRIS “Aerosols, Clouds, and Trace gases Research Infrastructure Network” project

INFRA-2010-1-1.1.16: Research Infrastructures for Atmospheric Research

www.actris.net

ACTRIS (Aerosols, Clouds, and Trace gases Research InfraStructure Network) is a European Project aiming at integrating European ground-based stations equipped with advanced atmospheric probing instrumentation for aerosols, clouds, and short-lived gas-phase species. ACTRIS will have the essential role to support building of new knowledge as well as policy issues on climate change, air quality, and long-range transport of pollutants. ACTRIS started on 1 April 2011 for a period of 4 years.

ACTRIS is building the next generation of the ground-based component of the EU observing system by integrating three existing research infrastructures EUSAAR, EARLINET, CLOUDNET, and a new trace gas network component into a single coordinated framework.



The main objectives of ACTRIS are:

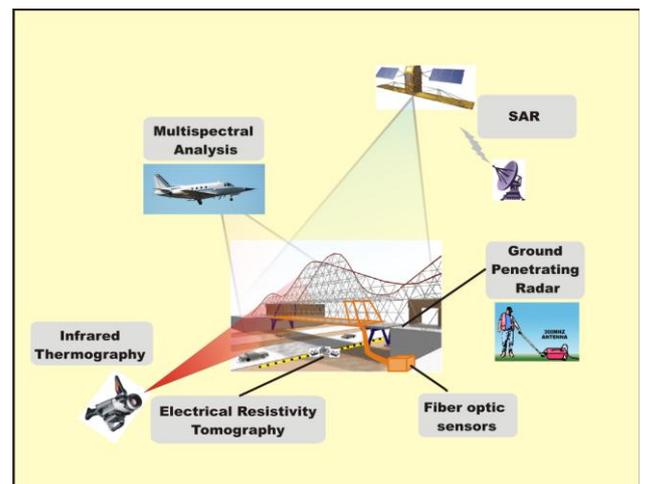
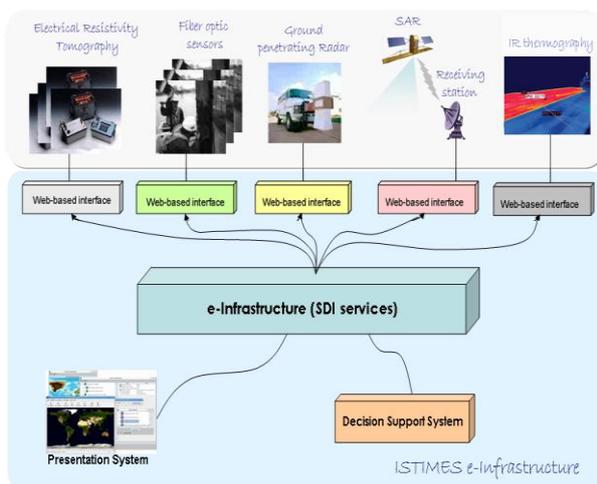
- To provide long-term observational data and to substantially increase the number of high-quality data relevant to climate and air quality research on the regional scale produced with standardized or comparable procedures throughout the network.
- To provide a coordinated framework to support transnational access to European advanced infrastructures for atmospheric research and access to high-quality information and services for the user communities.
- To develop new integration tools to fully exploit the use of multiple atmospheric techniques at ground-based stations, in particular for the calibration/validation/integration of satellite sensors and improvement of the parameterisations used in global and regional scale climate and air quality models. ACTRIS aims at providing time series of climate and air quality related variables not directly measured which are presently not available through existing data centres.
- To enhance training of new scientists and new users in particular students, young scientists, and scientists from eastern European and non-EU developing countries in the field of atmospheric observation.
- To promote the development of new technologies for atmospheric observation of aerosols, clouds and trace gases through close partnership with EU companies.

ISTIMES “Integrated System for Transport Infrastructures surveillance and Monitoring by Electromagnetic Sensing” project

FP7 ICT-SEC-2007-1.0-0.3 Optimised situational awareness through intelligent surveillance of interconnected transport and energy infrastructures

www.istimes.eu

The project was funded under the Joint Call ICT and Security and had a 3 years duration (07/2009-06/2012). The project was aimed at designing, assessing and promoting a prototypical electromagnetic sensing based monitoring and surveillance system, exploiting distributed and local sensors, in order to achieve the critical transport infrastructures more reliable and safe. By the integration of electromagnetic technologies with new ICT information and telecommunications systems, a remotely controlled monitoring and surveillance and real time data imaging of the critical transport infrastructures was provided.



The effectiveness of the ISTIMES approach has been verified at challenging test sites and test beds; in particular, the video will present these experimental activities as well as the possibility to use ISTIMES outcomes also beyond the project.

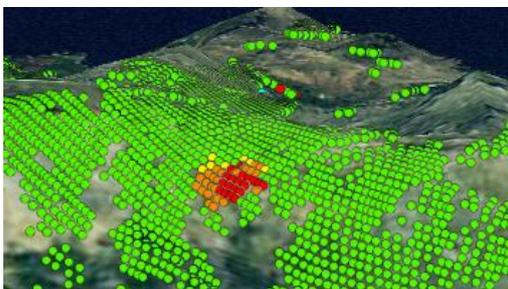
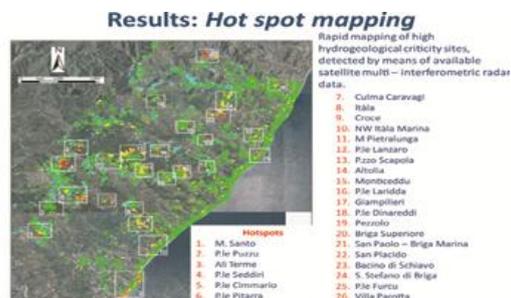
The project was coordinated by the TeRN “Tecnologie per le Osservazioni della Terra e i Rischi Naturali” Consortium, of which Consiglio Nazionale delle Ricerche, CREATEC “Consortio per l’Ambiente e l’Innovazione Tecnologica” and e-GEOS Spa have participated as third parties. The other 8 partners come from Italy, France, Switzerland, Norway, Israel, Sweden and Romania.

DORIS “Ground Deformations Risk Scenarios: an Advanced Assessment Service” project

Space Call 2 FP7-SPACE-2009-1

www.doris-project.eu

DORIS is an advanced downstream service for the detection, mapping, monitoring and forecasting of ground deformations, including landslides and ground subsidence, at different temporal and spatial scales and in various physiographic and environmental settings. DORIS integrates traditional and innovative Earth Observation (EO) and ground based (non-EO) data and technologies to improve our understanding of the complex phenomena that result in ground deformations, and to foster the ability of Environmental and Civil Protection authorities to manage the risks posed by ground deformations. DORIS delivers innovative products at the regional and local levels, tailored on the needs of national and local Civil Protection authorities. For the purpose, DORIS integrates state-of-the-art national technological and scientific capabilities with existing European upstream services. DORIS complies with guidelines provided by the EU Emergency Response Core Services, and is designed to be linked to existing Core Services. DORIS started on 1 October 2010 for a period of 3 years.



The DORIS downstream service is being tested in eight study areas in Europe.

DORIS benefits from a unique partnership of leading research institutes and commercial providers, and is expected to stimulate European competitiveness and sustainable development.

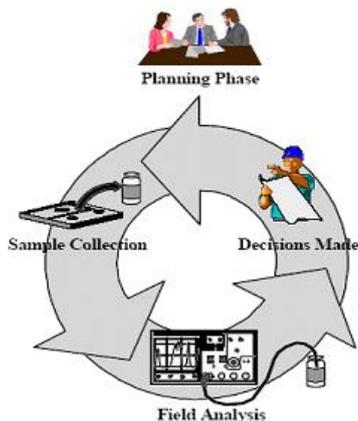
ModelPROBE “Model driven soil probing, site assessment and evaluation”

ENV.2007.3.1.2.2. Development of technologies and tools for soil contamination assessment and site characterization, towards sustainable remediation

<http://www.modelprobe.ufz.de/>

The strategy of ModelPROBE is to provide an integrative tool box for cost effective site screening, site characterisation, and forensics to aid the soil thematic strategy and to be applicable in a future Soil Framework Directive. The concept will also cover survey systems and strategies that will have feedback options for acquiring the information necessary for decision making regarding remediation measures and long-term monitoring.

On the one hand ModelPROBE will provide rapid low-invasive and cost effective evaluation techniques for site screening and evaluation and on the other hand it will provide methods that are reliable and fulfil all legal requirements to identify responsibilities and polluters by environmental forensics.



The concept of ModelPROBE is to provide a step by step site characterisation strategy with smart feedback loops. Advanced geophysical site characterisation techniques combined with new types of low-cost vegetation analysis are the dominant issue of the non- or low-invasive techniques. Based on these surveys, the extension of sources, contamination levels and soil heterogeneities will be localized. Hot spots and the field conditions will be investigated by new direct push probing systems including geophysical and hydrogeological methods combined with chemical and isotopic contaminant analysis for source localisation and identification (environmental forensics). These new techniques and tools will be evaluated against best practice of conventional methods. They will be applied at European reference sites available in the project and will be provided to consultants and SME's for application. Integrated statistical analysis and modelling at different stages of the step by step approach will result in an improved view of soil and subsurface contamination and will provide a sound basis for risk assessment and decision.

ITaRS “Initial Training for Atmospheric Remote Sensing”

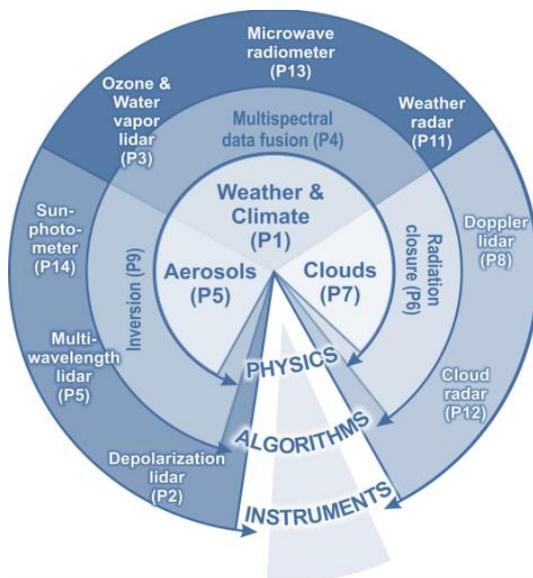
FP7-PEOPLE-2011-ITN Networks for Initial Training (ITN)

<http://www.itars.net/>

ITaRS (Initial Training for Atmospheric Remote Sensing) is a 4-year (1 April 2012 - 31 March 2016) interdisciplinary EU project in the frame of FP7-PEOPLE-2011-ITN (Marie Curie Actions). ITaRS brings together a group of universities, research organisations and high-tech companies from different disciplines (meteorology, geosciences, physics, electrical engineering, mathematics) with the aim to foster training and further development in the area of remote sensing of the atmosphere.

The last years have brought a rapid development in instrumental techniques, i.e. lidar, radar, radiometry, that have great potential to monitor atmospheric composition and dynamics in unprecedented detail. Such instrumentation is urgently needed to address important topics related to climate change, numerical weather forecasting, and atmospheric pollution. Most prominently aerosol-cloud interaction as the single largest uncertainty in current climate projections requires the exploitation of emerging observational techniques to improve the parameterisation of aerosol and cloud processes in atmospheric models. Today's curricula do not reflect these issues; ITaRS aims to fill this gap.

Scientific goals



- to bring together experts from the aerosol and cloud community to efficiently tackle the problems of aerosol-cloud interaction as well as their relevance for climate and weather;
- to build close ties between industry and research to optimize instrumentation for future networks;
- to assess the potential of advanced remote-sensing instrumentation and capabilities as an ingredient in a future observation system based on both ground-based networks and space-borne observations;
- to speed up technological transfer from research to industry by direct involvement of the private sector in specific training & research programmes, secondments and joint patents.

Training goals

a) To impart an in-depth understanding of instrumentation and algorithms needed to retrieve geophysical quantities and atmospheric applications; b) To foster the synergy of different sensors by bringing together experts from the individual techniques; c) To develop and implement pan-European courses on atmospheric remote sensing by exploiting new web-based techniques; d) To close the gap between the specialized development of single instruments and atmospheric applications by training a new generation of scientists in academia and the private sector.

Reference Documents

1. Sixth FP7 Monitoring Report - MONITORING REPORT 2012. European Commission, 07/08/2013
2. 7 ° PROGRAMMA QUADRO DI RICERCA E SVILUPPO DELL'UNIONE EUROPEA (2007-2013) - DATI DELLA PARTECIPAZIONE ITALIANA. Ministero dell'Istruzione dell'Università e della Ricerca Direzione Generale per l'internazionalizzazione della Ricerca, 1° marzo 2012.
3. http://www.adnkronos.com/IGN/Speciali/Scienza_e_Tecnologia/?id=3.0.3520625775

ANNEX A

***Brief description of FP7 projects
carried out by CNR-IMAA***

CAPACITIES PROGRAMME

Seventh Framework Programme (FP7)	INFRA-2010-1-1.1.16: Research Infrastructures for Atmospheric Research
Type of funding scheme	Combination of Collaborative Projects and Coordination and Support Actions for Integrating Activities
Title	Aerosols, Clouds, and Trace gases Research Infrastructure Network
Project Acronym	ACTRIS
Role of CNR-IMAA	Coordinator
Responsible	Gelsomina Pappalardo
Status	Completed
Duration	48 months (01-04-2011 – 31-03-2015)
Project cost	11.54 million Euro
Content	Project aims: at integrating European ground-based stations equipped with advanced atmospheric probing instrumentation for aerosols, clouds, and short-lived gas-phase species. ACTRIS will have the essential role to support building of new knowledge as well as policy issues on climate change, air quality, and long-range transport of pollutants. ACTRIS is building the next generation of the ground-based component of the EU observing system by integrating three existing research infrastructures EUSAAR, EARLINET, CLOUDNET, and a new trace gas network component into a single coordinated framework.
Website	http://www.actris.net/

Seventh Framework Programme (FP7)	FP7-REGPOT-2012-2013-1 Activity: 4.1 Unlocking and developing the research potential of research entities established in the EU's Convergence regions and Outermost regions Call Title: Integration of research entities from the EU's Convergence and Outermost regions in the ERA and enhancement of their innovation potential
Type of funding scheme	Coordination and Support Actions (CSA-SA)
Title	Building Capacity for a Centre of Excellence for EO-based monitoring of Natural Disaster
Project Acronym	BEYOND
Role of CNR-IMAA	Partner
Responsible	Rosa Lasaponara
Status	In progress
Duration	36 months (01-06-2013-30-05-2016)
Project cost	2.306 million Euro

Content	BEYOND aims to continue working on the existing state-of-the-art and interdisciplinary collaborations, for Building Capacity for a Centre of Excellence dedicated to Natural Disaster Management in southeastern Europe, including European Balkan countries. Potential to expand to the wider Mediterranean region through integrated cooperation with twining organizations is assured. Through BEYOND it will be possible to, a) set up innovative integrated observational solutions, b) create archives and data bases of long series of observations and derived higher level products, and c) make these observations and products available for exploitation with state-of-the-art science and models, hence providing the involved stakeholders, scientists and/or institutional users, with useful information for down streaming to their specific needs handling natural and human induced disasters.
Website	http://www.noa.gr/index.php?lang=en

COOPERATION PROGRAMME

Seventh Framework Programme (FP7)	Space Call 2 FP7-SPACE-2009-1
Type of funding scheme	Collaborative project
Title	Ground Deformations Risk Scenarios: an Advanced Assessment Service
Project Acronym	DORIS
Role of CNR-IMAA	Coordinator together with IRPI and IREA
Responsible	Vincenzo Lapenna
Status	Completed
Duration	36 months (01-10-2010 – 30-09-2013)
Project cost	4.57 million Euro
Content	Detection, mapping, monitoring and forecasting of ground deformations at different temporal and spatial scales and in various physiographic and environmental settings. DORIS integrates traditional and innovative Earth Observation (EO) and ground based (non-EO) data and technologies both to improve the understanding of the phenomena that result in ground deformations, including mass movements and land subsidence, and foster the ability of Civil Defence authorities to manage the risks posed by ground deformations.
Website	http://www.doris-project.eu/

Seventh Framework Programme (FP7)	Space Call 2 FP7-SPACE-2009-1 SPA.2010.1.1-07 - Fostering downstream activities and links with regions
Type of funding scheme	Coordination and Support Action
Title	Downstream Observatory organized by Regions active in Space network
Project Acronym	DORIS-net
Role of CNR-IMAA	Coordinator together with CNR-IREA
Responsible	Nicola Pergola
Status	Completed
Duration	24 months (01-02-2011 – 31-01-2013)
Total Budget	1.12 million Euro

Content	DORIS_Net suggests a Downstream Observatory organised by Regions which are all members of NEREUS (Network of European Regions Using Space Technologies) and potentially users of GMES downstream services. The Downstream Observatory will facilitate links between both regional and European level GMES stakeholders. The regional users and service providers will be supported by dedicated interfaces as well as a network of Regional GMES Contact Offices (RCOs) to create the European GMES Downstream Service Platform - the heart of DORIS_Net.
Website	http://www.doris-net.eu/

Seventh Framework Programme (FP7)	ENV.2010.4.1.1-1 Supporting the integration of European and international R&D programmes in GEO
Type of funding scheme	Coordination and support actions (Coordinating)
Title	Coordinating Earth and Environmental cross-disciplinary projects to promote GEOSS
Project Acronym	EGIDA
Role of CNR-IMAA	CNR-DTA participates as coordinator. Main contributions are from CNR-IMAA (scientific coordination) and CNR-IIA
Responsible	Stefano Nativi
Status	Completed
Duration	24 months (01-09-2010 – 31-08-2012)
Project cost	1.53 million Euro
Content	EGIDA will prepare a sustainable process promoting coordination of activities carried out by: the GEO Science & Technology (S&T) Committee; S&T national and European initiatives; and other S&T Communities. This will be done by supporting broader implementation and effectiveness of the GEOSS S&T Roadmap and the GEOSS mission through coherent and interoperable networking of National and European projects, and international initiatives. EGIDA will deliver evaluation processes, tests and assessment indexes, expertise databases, a “GEO Label” concept, surveys, and other instruments that will link relevant European S&T communities to GEOSS and ensure it is built using state-of-the-art science and technology. Through co-ordination with the GEOSS S&T Committee (five co-chairs are involved in EGIDA), these deliverables will contribute strongly to the GEO S&T Roadmap implementation.
Website	http://www.egida-project.eu/

Seventh Framework Programme (FP7)	FP7-SEC-2012.4.2-3 Post crisis lesson learned exercise
Type of funding scheme	Coordination and support actions
Title	ELICIT TO LEARN CRUCIAL POST-CRISIS LESSONS
Project Acronym	ELITE

Role of CNR-IMAA	Partner
Responsible	Sabatino Piscitelli
Status	Completed
Duration	18 months (01-01-2013 – 30-06-2014)
Project cost	1.18 million Euro
Content	<p>The objectives of the call with regard to knowledge gathering, categorisation, analysis and evaluation for the goal of post-crisis lessons learning and use of this learning in practice define implicitly the need of a Community of Practice (CoP) for crisis response. Therefore, the ELITE consortium has a strong representation of experienced crisis managers and responders across all phases of crises and of knowledge management experts embedded within a CoP. The role of the ELITE knowledge management experts is to secure the best acquisition, categorisation, and analysis of tacit, fragmented knowledge acquired by crisis management responders, and to ensure best practice insights. The ELITE CoP is assembled around a web solution comprising a repository of best practices and guidelines as well as social media features (ELITEs living document). During the projects lifetime, ELITE uses a holistic method that addresses all relevant phases of major crises along with their systemic relationships. After ELITEs project period, the living document is targeted as a Wikipedia-like solution with the necessary infrastructure and funding system so as to attract and serve the whole spectrum of end-users and crisis decision makers in Europe. Finally, to promote future research on this topic, ELITE will identify major remaining gaps and deliver recommendations for future research.</p>
Website	www.elite-eu.org/

Seventh Framework Programme (FP7)	SPA.2013.1.1-06 - Stimulating development of downstream services and service evolution
Type of funding scheme	CP-FP - Small or medium-scale focused research project
Title	An Earth obseRvation Model based RicE information Service
Project Acronym	ERMES
Role of CNR-IMAA	Coordinator together with IREA
Responsible	Stefano Pignatti
Status	To be started
Duration	36 months (01-03-2017 – 29/02/2020)
Project cost	3.35 million Euro

Content	ERMES (An Earth obseRvation Model based RicE information Service) aims to develop a prototype of downstream service dedicated to rice sector based on assimilation of EO and in situ data within crop yield modelling. The long term goal is to extend and adapt the service to Asian and African markets, in order to boost European competitiveness and contribute to a sustainable development.
Website	To be realized

Seventh Framework Programme (FP7)	ENV.2008.4.1.1.1: European environment Earth observation system supporting INSPIRE and compatible with GEOSS
Type of funding scheme	Large Scale Integrated project
Title	Global Earth Observation System of Systems
Project Acronym	EUROGEOSS
Role of CNR-IMAA	Partner
Responsible	Stefano Nativi
Status	Completed
Duration	36 months (01-05-2009 – 30-04-2012)
Project cost	7.91 million Euro
Content	The project builds an initial operating capacity for a European Environment Earth Observation System in the three strategic areas of Drought, Forestry and Biodiversity. It then undertakes the research necessary to develop this further into an advanced operating capacity that provides access not just to data but also to analytical models made understandable and useable by scientists from different disciplinary domains.
Website	http://www.eurogeoss.eu/default.aspx

Seventh Framework Programme (FP7)	ENV.2010.4.1.2-2 Integrating new data visualisation approaches of earth Systems into GEOSS development
Type of funding scheme	Collaborative project
Title	QUALity aware Visualisation for the Global Earth Observation system of systems
Project Acronym	GEOVIQUA
Role of CNR-IMAA	Partner
Responsible	Stefano Nativi
Status	Completed
Duration	36 months (01-02-2011 – 31-01-2014)
Project cost	4.02 million Euro

Content	The GEOSS Common Infrastructure provides clearinghouses and portals that facilitate discovery and visualisation of data in an integrated way. GEOVIQUA will extend the GEOSS infrastructure by adding well-defined data quality indicators and quality-enabled search and visualisation tools. These GEOVIQUA components will be implemented so as to be accessed on the basis of existing geo-portal standards and in the mass market "Google-like" map tools and other 3D viewers, as well as on mobile devices. The design and development of GEOVIQUA components will be undertaken in collaboration with the relevant GEO committees, the Open Geospatial Consortium Architecture Implementation Pilots and other relevant standards committees.
Website	http://www.geoviqua.org/Overview.htm

Seventh Framework Programme (FP7)	ICT-2007.6.3 ICT for environmental management and energy efficiency
Type of funding scheme	Coordination and support actions
Title	GEOSS Inspire and GMES an action in support
Project Acronym	GIGAS
Role of CNR-IMAA	Partner
Responsible	Stefano Nativi
Status	Completed
Duration	24 months (01-06-2008 – 31-05-2010)
Project cost	3.08 million Euro
Content	The GEOSS INSPIRE and GMES an Action in Support (GIGAS) promotes the coherent and interoperable development of GMES, INSPIRE and GEOSS initiatives through their concerted adoption of standards, protocols and open architectures. Given the complexity and dynamics of each initiative and the large number of stakeholders involved, the key added value of GIGAS is that of bringing together the leading organisations which are able to make a difference and achieve a truly synergistic convergence of the initiatives.
Website	http://www.thegigasforum.eu/project/project.html

Seventh Framework Programme (FP7)	SPA-2007-1.1-02 Developing pre-operational GMES pilot services in new application fields
Type of funding scheme	Collaborative project
Title	GMES services for Management of Operations, Situation Awareness and Intelligence for regional Crises
Project Acronym	G-MOSAIC
Role of CNR-IMAA	Partner

Responsible	Stefano Nativi
Status	Completed
Duration	36 months (01-01-2009 – 31-12-2011)
Project cost	15.28 million euro
Content	<p>Project aims: to provide the European Union with intelligence data that can be applied to early warning and crisis prevention as well as crisis management and rapid interventions in hot spots around the world.</p> <p>It aims both at identifying and developing products, methodologies and pilot services for the provision of geo-spatial information in support to EU external relations policies and contributing to define and demonstrate the sustainability of GMES global security services.</p>
Website	http://www.gmes-gmosaic.eu/

Seventh Framework Programme (FP7)	FP7-ENERGY-2013-1
Type of funding scheme	Collaborative Project
Title	Integrated Methods for Advanced Geothermal Exploration
Project Acronym	IMAGE
Role of CNR-IMAA	Partner together with IGG
Responsible	Enzo Rizzo
Status	In progress
Duration	48 months (01/11/2013 - 31/10/2017)
Project cost	13.3 million Euro
Content	<p>The rationale behind the IMAGE project is the application of cutting edge research based on a solid understanding of the subsurface processes and properties to significantly enhance the potential of geothermal energy in the energy mix. The uncertainty about the resource at depth, however, has been defined as one of the main bottlenecks for a more widespread use of geothermal energy. That's why initial geothermal development for power production was focussed on areas with abundant high-temperature magmatic resources at shallow depth, usually associated with surface manifestations. Recent developments have targeted deeper resources that are harder to detect from the surface. For the various countries without magmatic resources, geothermal power production from basement and sedimentary contexts is a valuable local source of energy, produced near the consumers who may also be interested in the co-produced heat. IMAGE aims to improve exploration methods for the extended resource base, which will reduce pre-drill uncertainty for the above performance indicators, based on a robust assessment of the critical exploration parameters.</p>
Website	https://www.tno.nl/

Seventh Framework Programme (FP7)	ICT-SEC-2007-1.0-0.3 Optimised situational awareness through intelligent surveillance of interconnected transport and energy infrastructures
Type of funding scheme	Collaborative project
Title	Integrated System for Transport Infrastructures surveillance and Monitoring by Electromagnetic Sensing
Project Acronym	ISTIMES
Role of CNR-IMAA	Third Party of TeRN Consortium (Coordinator)
Responsible	Vincenzo Cuomo
Status	Completed
Duration	36 months (01-07-2009 – 30-06-2012)
Project cost	4.37 million Euro
Content	<p>Project aims: to design, assess and promote an ICT-based system, exploiting distributed and local sensors for non-destructive electromagnetic monitoring in order to make the critical transport infrastructures more reliable and safe.</p> <p>This has the overall aim of developing a high situation awareness in order to provide real time and detailed information and images of the infrastructure status so as to improve decision support for emergency and disasters stakeholders.</p>
Website	www.istimes.eu

Seventh Framework Programme (FP7)	SPA.2012.1.1-04 Support to emergency response management
Type of funding scheme	Collaborative Project
Title	LAAndslide Modelling and tools for vulnerability assessment Preparedness and REcovery management
Project Acronym	LAMPRE
Role of CNR-IMAA	Coordinator together with CNR-IRPI
Responsible	Tiziana Simoniello
Status	Completed
Duration	36 months (01/03/2013 – 28/02/2015)
Project cost	2.48 million Euro
Content	<p>LAMPRE proposes to execute innovative research and technological developments to increase GMES limited operational capacity to cope with triggered landslide events and their consequences, in Europe and elsewhere. LAMPRE will enhance landslide risk mitigation/preparedness efforts and post-event-landslide recovery and reconstruction activities, in highly vulnerable geographic and geologic regions. The project improves the ability to detect/map landslides, assess/forecast the impact of triggered landslide events on vulnerable elements, and model landscape changes caused by slope failures. These goals are achieved by (i) researching and developing new techniques and products to dynamically integrate satellite/airborne imagery, (ii) designing and using intelligent image processing techniques, (iii) modelling landslide-structure interactions using advanced numerical modelling and ground based thematic information, and (iv) proposing standards for landslide</p>

	mapping, susceptibility zonation and image processing.
Website	http://www.lampre-project.eu/

Seventh Framework Programme (FP7)	ENV.2007.3.1.2.2. Development of technologies and tools for soil contamination assessment and site characterization, towards sustainable remediation
Type of funding scheme	Small or medium-scale focused research project
Title	Model driven soil probing, site assessment and evaluation
Project Acronym	MODELPROBE
Role of CNR-IMAA	Partner
Responsible	Vincenzo Lapenna
Status	Completed
Duration	46 months (01-06-2008 – 31-03-2012)
Project cost	4.61 million Euro
Content	Conventional techniques for site characterization are time consuming, cost intensive, and do not support any decision making. Therefore, new techniques for step-by-step site characterization strategy with smart feed back loops are necessary. These will be able to support a future soil framework directive. Advanced geophysical site characterization techniques combined with new types of vegetation analysis will be developed.
Website	http://www.modelprobe.ufz.de/

Seventh Framework Programme (FP7)	ENERGY-2007-9.1-01 Energy security of supply
Type of funding scheme	Collaborative project
Title	Risk of energy availability: common corridors for Europe supply security
Project Acronym	REACCESS
Role of CNR-IMAA	Partner
Responsible	Monica Salvia
Status	Completed
Duration	36 months (01-01-2008 – 31-12-2010)
Project cost	4.09 million Euro
Content	The implementation of this Project aims at: analysing present policies concerning EU MS and Community targets for energy import; evaluating technical, economical and environmental characteristics of present and future energy corridors within Europe and among Europe and the supplying regions of the World, taking into account the different typology of infrastructures and technologies (railways, pipelines, cables, terminals, ships and other carriers, ..), the flows and the distances involved for oil, natural gas, coal, electricity, uranium, biomass and hydrogen.
Website	http://reaccess.epu.ntua.gr/

Seventh Framework Programme (FP7)	SPA-2007-1.1-01 Development of upgraded capabilities for existing GMES Fast-Track Services and related (pre)operational services
Type of funding scheme	Collaborative project
Title	Services and Applications For Emergency Response
Project Acronym	SAFER
Role of CNR-IMAA	Partner
Responsible	Stefano Nativi
Status	Completed
Duration	36 months (01-01-2009 – 31-12-2011)
Project cost	40.56 million Euro
Content	Project aims: 1) to implement preoperational versions of the Emergency Response Core Service; 2) to reinforce European capacity to manage emergency situations such as fires, floods, earthquakes, volcanic eruptions, landslides, humanitarian crisis. 3) to upgrade of the core service and the validation of its performance with 2 priorities: a) a short term improvement of response when crisis occurs, with the rapid mapping capacity after disastrous events, including the relevant preparatory services (reference maps); b) an extension to core service components before and after the crisis.
Website	http://www.emergencyresponse.eu/site/FO/scripts/myFO_accueil.php?lang=EN

Seventh Framework Programme (FP7)	SPA.2012.1.1-01 Testing and validating the intelligence-driven and high time-critical scenarios of the CONOPS
Type of funding scheme	Small or medium-scale focused research project
Title	Services Activations for GRowing Eurosur's Success
Project Acronym	SAGRES
Role of CNR-IMAA	Partner
Responsible	Dimitri Dello Buono
Status	Completed
Duration	24 months (01-01-2013 – 31-12-2014)
Project cost	5.65 million Euro

Content	Services Activations For Growing Eurosur's Success in response to topic SPA.2012.1.1-01 entitled Testing and validating the intelligence-driven and high time-critical CONOPS. The context of ECs call to the present study is aimed at: -the validation of the services pointed out by FRONTEX in the specification of Concept of Operations (CONOPS) -the development of a cost-effective analysis -the definition of the bases to deploy the fully-operational versions. SAGRES will put into service the main outcomes of EO research to support the operational deployment of the high-time critical CONOPS component through the EUROSUR network.
Website	http://www.copernicus-sagres.eu/

Seventh Framework Programme (FP7)	ICT for Environmental services and Climate Change adaptation Projects
Type of funding scheme	Collaborative Project
Title	The Uncertainty Enabled Model Web
Project Acronym	UNCERTWEB
Role of CNR-IMAA	Partner
Responsible	Stefano Nativi
Status	Completed
Duration	36 months (01-02-2010 – 31-01-2013)
Project cost	3.71 million Euro
Content	UncertWeb will create the Uncertainty enabled Model Web by facilitating an interoperability between data and models with quantified uncertainty, built on existing open, international standards. In particular UncertWeb will develop encoding standards, service interface profiles, discovery and chaining mechanisms and open source implementations, and generic tools to realize a 'model Web' that takes uncertainty in data and models fully into account. The developments in UncertWeb will be validated by scenarios from four environmental application domains: biodiversity and habitat change, land use and policy modelling, local air quality forecasting, and individual activity in environment. In each application domain prototype service chains will be built using UncertWeb technology. To further evaluate the discovery and chaining mechanisms UncertWeb will integrate the air quality and activity modelling to produce novel service chains that quantify individual exposure and the effects of individual's activity choices on emissions with quantified uncertainty. The project will deliver encoding standards, interface profiles and open source software implementations to allow continued development of the Uncertainty enabled model Web beyond the funding.
Website	http://www.uncertweb.org/

Seventh Framework Programme (FP7)	Space Call 2 FP7-SPACE-2009-1 SPA.2010.1.1-07 - Fostering downstream activities and links with regions
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Type of funding scheme	Coordination and Support Action
Title	Weather hazards for aeronautics
Project Acronym	WEZARD
Role of CNR-IMAA	Partner
Responsible	Gelsomina Pappalardo
Status	Completed
Duration	24 months (01/07/2011 – 30/06/2013)
Total Budget	0.74 million Euro
Content	WEZARD aims to support and contribute to the preparation of future community research in air transport system robustness when faced with weather hazards. It will focus on hazards which can be spread over large areas such as volcanic ash clouds or severe atmospheric conditions including icing. The WEZARD consortium will 1/ take stock of the current knowledge of weather hazards affecting airframes, engines and systems and identify the needed technology and capability developments pathways, 2/ compile knowledge on the collection, processing and communication of meteorological data and investigate what research is needed on observation, forecasting tools, data assimilation and broadcasting, 3/ investigate the existing and needed safety standards and procedures, 4/ model the capacity of the scientific community to better understand, observe and simulate hazardous particles. These activities will result in a R&D roadmap identifying research gaps and priorities and providing recommendations to the main stakeholders of the aeronautical community.
Website	www.wezard.eu/

PEOPLE PROGRAMME

Seventh Framework Programme (FP7)	Programme: PEOPLE Subprogramme area: FP7-PEOPLE-2011-ITN
Type of funding scheme	Networks for Initial Training (ITN)
Title	Initial Training for Atmospheric Remote Sensing
Project Acronym	ITARS
Role of CNR-IMAA	Partner
Responsible	Aldo Amodeo
Status	In progress
Duration	48 months (01-04-2012 – 31-03-2016)
Project cost	3.69 million Euro
Content	ITaRS brings together a group of universities, research organisations and high-tech companies from different disciplines (meteorology, geosciences, physics, electrical engineering, mathematics) with the aim to foster training and further development in the area of remote sensing of the atmosphere. The last years have brought a rapid development in instrumental techniques, i.e. lidar, radar, radiometry, that have great potential to monitor atmospheric composition and dynamics in unprecedented detail. Such instrumentation is urgently needed to address important topics related to climate change, numerical weather forecasting, and atmospheric pollution. Most prominently aerosol-cloud interaction as the single largest uncertainty in current climate projections requires the exploitation of emerging observational techniques to improve the parameterisation of aerosol and cloud processes in atmospheric models. Today's curricula do not reflect these issues; ITaRS aims to fill this gap.
Website	http://www.itars.net/



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