Memorandum of Understanding

between

CHAIN and WRF4G

1. Purpose of this MoU

The term VRC (Virtual Research Community) is defined as an organisational grouping that represents a community of users with common interests. The EGI VRC model brings together the stakeholders within a standard, flexible, persistent and sustainable structure. A VRC could then be a self-organising group that collects and represents the interests of a focussed collection of researchers across a clear and well-defined field and/or a group of researchers who are common users of a specific e-Science application. Named contacts are agreed upon by the VRC to perform specific roles and these then form the communication channel between the VRC and CHAIN.

The objectives of the CHAIN project (Grant Agreement no. 260011, www.chain-project.eu) can be divided into three main areas:

1. Define a strategy and a model for external collaboration, in close collaboration with EGI.eu, which will enable operational and organisation interfacing of EGI and external e-Infrastructures. This strategy will take into account current organisational models, while, regarding operational models, a peering model will be defined between Europe and other continents.

2. Validate this model, as a proof-of-principle, by supporting the extension and consolidation of worldwide Virtual Research Communities, which work on common areas (Bioinformatics, Chemistry, etc.) and/or increasingly require distributed facilities (e.g., large instruments, distributed data and databases, digital repositories, etc.) across the regions for trans-continental research. The limited support for such existing communities will be complemented by a coordinated activity of support for the international expansion to other prospective communities that have not exploited yet the full benefits of large intercontinental e-Infrastructures.

3. Propose and explore concrete steps forward towards the coordination with other projects and initiatives (e.g., EGI-InSPIRE, EUMEDGRID-Support, EU-IndiaGrid2, LinkSCEEM2, PRACE, the Indian National Knowledge Network, GISELA, etc.).The project will act as a worldwide policy-watch and coordination instrument, by exploring and proposing concrete steps for the coordination with other initiatives and studying the evolution of eInfrastructures towards not only Grids and HPC but also Cloud Computing, Virtualisation, Desktop and Voluntary Computing and other trends that may emerge. This interaction with other e-Infrastructures will also imply a strong commitment to standards' adoption.

The WRF4G application (http://www.meteo.unican.es/software/wrf4g) is a framework for the execution and monitoring of the WRF Modelling System (http://www.wrf-model.org) in heterogeneous distributed computer resources. On the one hand, it provides a flexible and simple framework to design, execute and monitor complex experiments involving huge amount of simulations (multiple start/end dates, multiparametric simulations, climate runs, etc.). On the other hand, the WRF4G application provides a homogeneous interface to heterogeneous computing and storage resources, ranging from personal computers, workstations, clusters and HPC resources, including GRID infrastructures. All these

resources are jointly managed and monitored by WRF4G in a transparent way, including utilities for execution and error management (application check-pointing, etc).

CHAIN project receives funding support from the European Commission in the context of its Seventh Framework Programme. On the other side,

On the date of the signature of this MoU, WRF4G is an open-source initiative supported by the Santander Meteorology Group (http://www.meteo.unican.es) and partially funded by the Spanish National Research Program by the project *"Coordinated regional climate downscaling experiment using WRF: a contribution to the CORDEX initiative by the Spanish WRF community"* (CICYT, CGL2010-22158-C02), from January 1st 2012 for three years, and by the project *"Adaptation of WRF Model to GRID Infrastructures and user-case for wind hindcast over Europe"* (CICYT, CGL2011-28864)

Both initiatives have a common interest in a close cooperation in order to achieve their respective objectives.

This Memorandum of Understanding (MoU) specifies the way in which such cooperation will be undertaken.

2. Common Activities

Activities which will be undertaken in common by the two initiatives are listed in Annex 1 to this MoU. The initiatives may from time to time wish to add other activities to the MoU. In such case the new activities to be added will be agreed in writing by the respective initiatives managements or people in charge, and be defined by an amendment of this MoU, simply adding a new Annex 1.

3. Communication

The Project Managers or people in charge of the two initiatives will maintain regular contact to discuss any managerial matters related to the cooperation described in this MoU. Each initiative will appoint one Principal Point of Contact to act as the primary technical channel of communication between the initiatives as is necessary for the promotion of effective cooperation between the projects.

4. Administrative Matters

Each initiative will maintain full responsibility for its own activities, including the fulfilment of its obligations under its Grant Agreement with the European Commission or funding agency and provides no warranty, express or implied, in respect of its contribution to any activity agreed by the initiatives under this MoU, including but not limited to those of fitness for a particular purpose and the infringement of third-party proprietary rights.
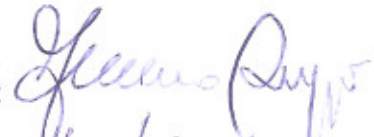
Any proprietary rights relating to the results of activities undertaken by the initiatives under this MoU shall be jointly held by the projects, and each initiative herewith grants the other initiative a free, irrevocable and perpetual license to use such rights, including the granting of sub-licenses to such rights, for its own purposes, including the right for each project to place the results of such activities in the public domain, in its own name and under its own responsibility.

This Agreement will terminate when either of the initiatives is complete, or when either initiatives gives notice of termination to the other, in which case a minimum notice of three months will be given.

Duly signed in 2-fold by:

Signed on behalf of CHAIN by:

Signed on behalf of WRF4G by:

Name: Federico Ruggieri (project director)

Name: Antonio S. Cofiño (project leader)

Signature:

Date: 19/9/2011

Signature:

Date: 14/9/2011

Annex 1 – Coordinated Activities

Promotion of Grid Infrastructures and WRF4G and CHAIN objectives and road-map for the future

- Both initiatives will cooperate in supporting the WRF4G required services in those Grid Infrastructures targeted by CHAIN, either in developed or emerging continents, promoting as much as possible the adoption of standards and best practices.

- CHAIN project will present in its web page the information about the VRCs interacting with. In order to dynamically fill the tables containing the related information, WRF4G will work on setting up automatic sources of information or providing them periodically in order to fill in the tables in a static way at least.

- Both initiatives will work on maximising the impact of both CHAIN and WRF4G, through the efficient coordination of dissemination of their joint or individual. They will collaborate, where relevant, in the organisation of workshops aiming at discussing common issues.

- CHAIN will foster the contacts of the research communities with WRF4G; WRF4G will provide support to enable the discovery of new users and to engage them. In this sense, WRF4G will report to CHAIN about the identification of research groups that are part of WRF4G and active in CHAIN's regions of interest. CHAIN will encourage and support users associated with the project to make use of the WRF4G support services either directly or through their National or Community gateways.

- CHAIN will exchange with WRF4G the information and know-how related to NGIs and both initiatives will provide feedbacks related to the CHAIN questionnaire.

- Both initiatives will contribute to the definition of the road-maps for the future activities in the common field of interest.

- Both initiatives will contribute to the raising of awareness of both new potential users and decision makers, through the presentation of the results of the grid activities, about the usefulness of e-Infrastructures for e-Science.

CHAIN will fully exploit the collaboration with WRF4G providing complementary actions on those countries and/or institutes which are not participating to WRF4G.

In addition to the signatory people of this MoU:

CHAIN point of contact will be:

- Prof. Dr. Federico Ruggieri – INFN Roma Tre –Via della Vasca Navale, 84 – 00146 Rome – Italy - +390657337232 – federico.ruggieri@roma3.infn.it

- Prof. Dr. Roberto Barbera – INFN Catania - Via Santa Sofia, 64 - 95123 Catania – Italy – +390953785504 - roberto.barbera@ct.infn.it

- Dr. Rafael Mayo García – CIEMAT – Avda. Complutense, 40 – 28040 Madrid – Spain - +34913460000 – rafael.mayo@ciemat.es

WRF4G point of contact will be:

- Associate Professor Dr. Antonio S. Cofiño. Department of Applied Mathematics and Computer Sciences – University of Cantabria. Avda Los Castros 44 – 39005 Santander – Spain – +34942201731 – antonio.cofino@unican.es.

- Assistant Professor Dr. Jesús Fernández Fernández. Department of Applied Mathematics and Computer Sciences – University of Cantabria. Avda Los Castros 44 – 39005 Santander – Spain – +34942201723 – jesus.fdez@unican.es.