Meteo Italian SupercompuTing poRtAL

First Annual Activity Report per semester
01/10/2018-31/03/2019
and
01/04/2019-30/09/2019

European Commission
Innovation and Networks Executive Agency (INEA)

Connecting Europe Facility

Activity Interim Report

1. INFORMATION ON THE ACTION

Grant Agreement Nº	INEA/CEF/ICT/A2017/1567101
Action Title (Art. 1 of G.A.)	MISTRAL
Action number (Art. 1 of the G.A.)	2017-IT-IA-0144

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2. IMPLEMENTATION OF THE ACTION

2.1. Reporting Period **M1-M6**

The Reporting period corresponds to the **FIRST Semester** of Mistral project: 10/01/2018 – 03/31/2019

2.2. Completion per activity/work package

Activity 1	**Title**	**Planned Start/End date[3]**		**Actual Start/End date**		**Completion**
	MANAGEMENT and COORDINATION	M1	M24	M1	M6	y
Milestone / Deliverable no	**Title[3]**	**Planned date[3]**		**Actual date**		**Reached (Y/N)**
MS1	Mistral Kick Off and public project web site (Dedagroup)	M3 (Dec-2018)		31/12/2018		Y
D1.4	Quality Control, Risk Management and IPR (Cineca)	M3 (Dec-2018)		15/01/2019		Y
D1.5	Data Management Plan (Cineca)	M6 (Mar-2019)		31/03/2019		y

Activity 2	**Title**	**Planned Start/End date[3]**		**Actual Start/End date**		**Completion**
	DISSEMINATION, SUSTAINABILITY and OUTREACH	M1	M24	M1	M6	y
Milestone / Deliverable no	**Title[3]**	**Planned date[3]**		**Actual date**		**Reached (Y/N)**
D2.1	Dissemination and Communication Plan(ArpaP)	M3 (Dec-2018)		31/03/2019		y
D2.2	Website (Dedagroup)	M3 (Dec-2018)		27/12/2018		y

	Title	**Planned Start/End date[3]**	**Actual Start/End date**	**Completion**

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Activity n 3	Mistral Use CASES	M1	M8	M1	M6	y
Milestone / Deliverable no	**Title**	**Planned date[3]**		**Actual date**		**Reached (Y/N)**
MS3	Mistral use cases and services	M5 (Feb-2019)		31/03/2019		y
D3.1	Definition of Mistral Use cases and Services	M5 (Feb-2019)		31/03/2019		y

Activity n 4	**Title**	**Planned Start/End date[3]**		**Actual Start/End date**		**Completion**
	Open Data Policy	M1	M12	M1	M6	
Milestone / Deliverable no	**Title[3]**	**Planned date[3]**		**Actual date**		**Reached (Y/N)**
MS4	Data Harmonization Specifications	M6 (Mar-2019)		31/03/2019		n
D4.1	Catalogue of observed and forecast data suitable for Open Data Portal	M5 (Feb-2019)		28/02/2019		y
D4.2	Observed and Forecast Data Harmonization Specifications	M6 (Mar-2019)		In progress		n

Activity n 5	**Title**	**Planned Start/End date[3]**		**Actual Start/End date**		**Completion**
	Mistral Service	M1	M24	M1	M6	
Milestone / Deliverable no	**Title[3]** **No Milestones and Deliverables foreseen in the present period**	**Planned date[3]**		**Actual date**		**Reached (Y/N)**

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2. IMPLEMENTATION OF THE ACTION

2.1. Reporting Period **M6-M12**

The Reporting period corresponds to the **SECOND Semester** of Mistral project : 01/04/2019 – 30/09/2019

2.2. Completion per activity/work package

Activity 1	Title	Planned Start/End date[3]		Actual Start/End date		Completion
	MANAGEMENT and COORDINATION	M1	M24	M7	M12	In progress
Milestone / Deliverable no	**Title[3]**	**Planned date[3]**		**Actual date**		**Reached (Y/N)**
D1.1	First annual activity report Management of the project (Cineca)	M12 (Set 2019)		30/09/2019		Y

Activity 2	Title	Planned Start/End date[3]		Actual Start/End date		Completion
	DISSEMINATION, SUSTAINABILITY and OUTREACH	M1	M24	M7	M12	In progress
Milestone / Deliverable no	**Title[3]**	**Planned date[3]**		**Actual date**		**Reached (Y/N)**
D2.4	Video tutorial on the web portal characteristics and functionalities	M12 (Set 2019)		30/09/2019		N

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Activity n 3	Title	Planned Start/End date[3]		Actual Start/End date		Completion
	Mistral Use CASES(DPC)	M1	M8	M7	M12	Y
Milestone / Deliverable no	**Title**	**Planned date[3]**		**Actual date**		**Reached (Y/N)**
D3.2	Functional and non functional requirement analysis of open data portal front-end and back-end – (Arpae)	M8 (May-2019)		30/05/2019		y

Activity n 4	**Title**	**Planned Start/End date[3]**		**Actual Start/End date**		**Completion**
	Open Data Policy	M1	M12	M7	M12	In progress
Milestone / Deliverable no	**Title[3]**	**Planned date[3]**		**Actual date**		**Reached (Y/N)**
MS5	Open data Policy -Data use and re-use policy (M12) - DEDAGROUP	M12 (Set 2019)		In progress		N
D4.2	Observed and Forecast Data Harmonization Specifications (Dedagroup)	M6 (Mar-2019)		30/09/2019		Y
D4.3	Requirements analysis of open data reuse (Dedagroup)	M12 (Set 2019)		In progress		N

Activity n 5	**Title**	**Planned Start/End date[3]**		**Actual Start/End date**		**Completion**
	Mistral Service	M1	M24	M7	M12	In progress
Milestone / Deliverable no	**Title[3]**	**Planned date[3]**		**Actual date**		**Reached (Y/N)**
D5.2 (software)	**Open Data Catalogue(Dedagroup) (release 1)**	**M12 (Set 2019)**		30/09/2019		**Y**
D5.3 (software)	**Post-processing tools 1st release**	**M12 (Set 2019)**		30/09/2019		**Y**
D5.7(report)	**High Availability Requirement Analysis for forecast data (Arpae)**	**M12 (Set 2019)**		30/09/2019		**N**

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Activity interim Report

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2.3. Description of the implementation of the tasks of each activity where the partner has been involved, including the actual status and possible deviations from the planned activities, and, if applicable, compliance with any relevant specific provisions as indicated in the Annex I of the GA

Activity 1 MANAGEMENT and COORDINATION (CINECA) I SEMESTER

CINECA

- Prepared a first version of the consortium agreement shared among the partners and updated it in order to include the feedbacks received by them. The agreement is ready and the coordinator is working with the partners in order to collect the signatures.
- Organization and coordination of :
  - Mistral Kickoff Meeting, held in Cineca (Bologna) the 9th of October 2018 (MS1)
  - PMB Board January, held the 31, 2019 via call conference

- Set up of communications tools and collaborative instruments in order to set up an effective collaboration among the partners , with the project board and with the EC:
  - Realization of a Wiki Confluence Space as Mistral Repository for sharing documents and meeting minutes

    https://wiki.u-gov.it/confluence/display/MISTRAL
  - Set up of a project management tool (Trello) dedicated to Mistral for managing tasks and deadlines for each activity
  - Set up of the Mistral Mailing list Mistral@list.cineca.it
- Organization of several meetings also through video conference (Webex)
- Monitoring the financial aspects of the project
- Preparation, delivery and monitoring of a Data Management Plan (D1.5) for the Mistral project
- Preparation and delivery *of D 1.4 Quality Control, Risk Management and IPR* (M3)
  - Preparation of *the form sheet to collect the information on the Mistral dataset*
- Preparation and delivery *of Deliverable 1.4 Quality Control, Risk Management and IPR (M3)* that includes:
  - ANNEX I: Deliverables Lists
  - ANNEX II: Template for Deliverables
  - ANNEX III: Checklist for Deliverables
  - ANNEX IV: Mistral Boards Members
  - ANNEX V: Activity Interim Report Template
  - ANNEX VI: Interim Financial Reporting template
- Preparation of a list of partners assigned as internal reviewers of the project deliverables for the intra-consortium peer review as defined in *D 1.4 Quality Control, Risk Management and IPR*

Activity 1 MANAGEMENT and COORDINATION (CINECA) II SEMESTER

CINECA

- Consortium agreement signed by all partners
- Organization and coordination of :
  - PMB Board held in CINECA (Bologna) the 08 of May, 2019
  - Supervisory Board held in CINECA (Bologna) the 08 of May, 2019
- The Wiki Confluence Space as Mistral Repository has been updated and other sections has been added

- Monitoring the financial aspects of the project
  - At the end of the 1st semester the coordinator collected the effort spent in the projects by the partners

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- The coordinator together with the Activity leaders prepared a letter to the Functional Centers of Italian Regions and competent authorities in order to receive their authorization to harvest, store and disseminate the meteorological observational data available in DPC.
- The coordinator together with the Activity leaders analyzed and defined the open data license to use for observational data
- The coordinator at the end of the 1st and 2nd semesters prepared the Activity reports that constitutes the Deliverable D1.1 "First Annual Activity report". Each report has been shared with all the partners and activity leaders and their feedbacks and contributions have been integrated in the final report.

Activity 2 Dissemination, Sustainability and Outreach (ARPAP) I SEMESTER

ARPAP

- Preparation of a project brochure that includes the Mistral objectives and a presentation of each partner (text available both in Italian and English) .

  This brochure has been prepared in order to be posted on a web page on the partner's web sites. Partners that published on their web site this Mistral presentation are:

  - ECMWF https://www.ecmwf.int/en/research/projects/mistral
  - ARPAP http://www.arpa.piemonte.it/rischinaturali/tematismi/meteo/Collaborazioni-e-progetti/MISTRAL.html
  - DEDAGROUP https://www.dedagroup.it/public-services/mistral-meteo-italian-super-computing-portal
  - CINECA https://www.cineca.it/it/news/mistral-meteo-italian-supercomputing-portal
  - ARPAE https://www.arpae.it/dettaglio_notizia.asp?id=10384&idlivello=32
- worked for the definition of Deliverable 2.1 Dissemination and Communication Plan (ARPAP)
- For the T 2.2 Outreach, ARPAP has been organizing an Hackathon that will take place in May 2019 in order to realize a part of the dissemination objective. Furthermore, several call conferences and meetings have been organized in order to prepare this events and the collaboration with the local partner for the event planning has started (Politecnico di Milano).

CINECA in collaboration with ARPAP

- design and realization of Mistral LOGO. Cineca produced several versions of the Logo. These were presented to each partner that selected the preferred one through a doodle. Beside the LOGO, CINECA produced also the Mistral Coordinated Image that includes:
  - Colors palette
  - Font
  - Template for deliverables and slides
  - Different files for LOGO, transparent, high and low resolution, web and email version
- organized and realized several call conferences with ARPAP in order to clarify the requirements for Mistral LOGO and the Coordinated image

DEDAGROUP in collaboration with Cineca

- designed and implemented the Mistral WEB PORTAL for project promotion., available at the following link: http://www.mistralportal.eu/
- Cineca organized a meeting with DEDAGROUP for Mistral web site
- Cineca defined and implemented a Virtual machine for Mistral Web site
- Cineca organized a doodle for selecting domain names among partners. The selected name was:

  http://www.mistralportal.it/

  http://www.mistralportal.eu/

Activity 2 Dissemination, Sustainability and Outreach (ARPAP) II SEMESTER

ARPAP

- Organized and realized the first Mistral Hackathon that took place at the Politecnico di Milano. The team organized also the possibility to follow the meeting on twitter https://twitter.com/Mistral_hack19 and on the Mistral hackathon

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YouTube channel there are the contributions of some experts who introduced the hackathon work sessions: https://www.youtube.com/channel/UClwdORR699ANIcWZ6yIel6g

- It was an intense day of collaboration between experts on nine application areas to collect requests and advice on the design of Mistral: the National Portal of meteorological Open data, both real-time and historical.
- Prepared an instant report of the event with some data: topic of each table, participants people and summary results
- Prepared the expected material: brochure and roll-up on the occasion of the "European Researchers' Night " event
- promotion and advertising of the project in various conferences (national and international) with posters and oral presentations

ARPAP, CINECA, ARPAE, DPC and Dedagroup

- Participated in the hackathon as table coordinators

CINECA

- Organized a point of dissemination during *European Researchers' Night* event

DEDAGROUP-CINECA

- Update of the web portal with new events, create publications and contact pages.

DPC

- Update the potential Use Cases contacts to Hakhathon organization.
- Contacted the Met Service of Italian Air Force owner of Synop and Metar data in Italy

ECMWF

- Update of the web portal with an event page regarding ECMWF "Point Rainfall" product, a key component in ECMWF's contribution to MISTRAL
- Presentations at the European Meteorological Society annual meeting taken place in Copenhagen (Denmark) from 9 to 13 September2019:
  - Poster presentation "Creating an Open data Portal for Citizens: the MISTRAL Project" and it was included in the poster session "Creating value through Open Data" with the description of the main activities within the project.
  - Oral presentation "**Exploring the benefits of COSMO limited area model and the new ECMWF "ecPoint" precipitation post-processing" describing the blending techniques.**
  - **Oral presentation "Performance of ECMWF- and COSMO-based ensemble forecast systems for precipitation events over Italy" showing results for some case studies.**

Activity 3 Mistral Use Cases (DPC) I SEMESTER

CINECA – ARPAE

- organized and realized several meetings with DEADAGROUP and DPC in order to instruct the technical partners on the knowledge domain of meteorological data and on the tools developed by ARPAE.
  In particular:
  - analysis of observational and forecast data
  - analysis of tools and components of existing services , in particular those developed by ARPAE, fulfilling tasks similar to those envisaged by the project
  - analysis of functional and non-functional requirements for the definition of Mistral use cases

ARPAE

- detailed description of the use cases and requirements

CINECA

- definition of a model to formalize the use cases using UML standard language

CINECA – DEDAGROUP

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- worked together for the analysis and the definition of the required functionalities of the system and its services. With the support of DPC and ARPAE they worked in particular on:
  - Analysis of original use cases already descripted in Mistral Proposal
  - Analysis of use cases and requirements
  - definition of workflows to ingest datasets and metadata

ECMWF

- Analyzed and better defined the use case *Italy flash flood*

ARPAE – DPC – CINECA – DEDAGROUP

- Preparation of D3.1 Definition of Mistral Use cases and Services (M5)

ARPAP

- Contribution to D3.1 Definition of Mistral Use cases and Services (M5)
- Internal work for preparing the Embedded Applications for D3.2 Functional and non functional requirements for open data portal front-end and back-end (M8)

Activity 3 Mistral Use Cases (DPC) II SEMESTER

CINECA – DEDAGROUP – ARPAE_DPC

Organized several meeting together to complete the definition of Use cases, as a consequence the deliverable D3.1 Definition of Mistral Use Cases and Services has been updated.

ARPAE

- Completed the Deliverable 3.2 "Functional and non functional requirement analysis of open data portal front-end and back-end "

DEDAGROUP

- Review D3.2 "Functional and non functional requirement analysis of open data portal front-end and back-end "

ARPAP

- Internal work for calibrating the Multi-model super-ensemble prediction system, one of the two user-perspective applications foreseen within the project (inside D 3.2 - Functional and non functional requirements for open data portal front-end and back-end).

ECMWF

- 6-hourly
- ecPoint Rainfall has been completely developed and tested in ECMWF. Currently in the version 1.1 after several improvements in the predictors part and with positive results.
- COSMO variable-size neighborhood post-processing successfully developed at ECMWF in two different "flavours" and ready for the implementation on Galileo cluster.

Activity 4 Open Data Policy(ARPAE) I SEMESTER

ARPAE-DPC

- Realization of the template to be used to catalogue the Observed Data that will be ingested in the Mistral platform

ARPAE

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- Organization of several meetings dedicated to train the team on observed and forecast data
- In collaboration with DPC, they worked in order to prepare D4.1 Catalogue of observed and forecast data suitable for Open Data Portal. ArpaE prepared Part b: Catalogue of forecast data

DPC

- In collaboration with ARPAE, they worked in order to prepare D4.1 Catalogue of observed and forecast data suitable for Open Data Portal. DPC prepared Part D4.1a - Italian Observational Networks
- Organization of two meetings in Rome in DPC premises in order to work on the Observed Data Catalogue
- Provided documents for observed data:
    - Anagrafiche delle stazioni a terra del Sistema di Allertamento Nazionale
- Compilation of the schema for Observed Data Catalogue both with ground station and national radar network

DEDAGROUP

Completed D4.2

- worked on Data Harmonization Specification (M6)

ARPAP

- contribution to D4.1 Catalogue of observed and forecast data suitable for Open Data Portal and review of the final document

Activity 4 **Open Data Policy(ARPAE) II SEMESTER**

DEDAGROUP

- Completed the *Deliverable 4.2 Observed and Forecast data Harmonization Specification* after ECMWF suggestions
- Daft version of Deliverable 4.3 Requirements for open data re-use

CINECA - DEDAGROUP

- Had Several meetings in CINECA in order to analyze how to display the datasets in the Mistral Open data Catalogue

CINECA

- Analysed among the open data standard licenses which is the most suitable to propose for the observed data of the Italian functional centers

DPC

- carried out with Cineca the task of requesting regional functional centers for the use of observational data from ground stations.
- Following the Cineca request to the Italian regions about the sharing of observed data, made further check with data owner
- Provided additional specifications on national radar products available by the DPC.

ARPAE

- Concluded the formalities related to the contract for the legal expert on copyright, intellectual property and open data. The bid they had to put in place delayed a bit the starting of the definition of open meteorological databases policies foreseen within the Mistral national data collection and distribution portal. The activity with the legal expert has started and a first draft report has been circulated in view of a plenary meeting with the expert and all the project partners.
- Their contribution to D4.3 Requirements for open data reuse is in progress.

ECMWF

- Reviewed the *Deliverable 4.2 Observed and Forecast data Harmonization Specification*
- Preparation of the Research Agreement to be signed by all the partners for the transfer of ECMWF data to CINECA in the framework of MISTRAL project. Waiting for a first answer from Italian Meteorological Service since they are ECMWF Members and we need their agreement before proceeding with the document.

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Activity 5 Mistral Service(CINECA) I SEMESTER

CINECA and DEDAGROUP

- Started the design of software adaptation of the Data harvesting component

DEDAGROUP

- started the design of Open data catalogue and Open Data portal set up

CINECA

- started the set-up of Mistral infrastructure to be made available for the Mistral platform. Currently it comprises:
  - Virtual machine on tenant CLOUD_MISTRAL
  - Virtual machine for Mistral Web site
  - Devel Virtual machine dedicated to ArpaE for running Meteo forcast
  - HPC infrastructure setup
- Installation on Galileo cluster of packages Metview Bundle and ecFlow necessary to ECMWF for developing of the use case *Italy flash flood*

ARPAP

- started the design of post-processing tools and procedures

ECMWF

- implemented test transfer of files from Galileo cluster to ECMWF machine for the use case *Italy flash flood*
- performed preliminary tests with Metview on Galileo cluster for the use case *Italy flash flood*
- Tested ecPoint rainfall on ECMWF local machines and supercomputer for the use case *Italy flash flood and started the adaptation of definition files to set up it in CINECA.*

Activity 5 Mistral Service(CINECA) II SEMESTER

CINECA

- Development of Mistral backend:
  - Infrastructure of Mistral Meteo-Hub
  - First functionalities in relation to **UC Catalogue Query and Download for Forecast data:**
    - Data filtering and extraction
    - Post processing (computation of derived variables)
    - Scheduling of the jobs
    - Results downloading
- Development of a first draft release of Mistral frontend
- Ingestion and Integration of a forecast data file (Cosmo – Lami procedure) for testing
- State of art of meteo data visualizations for the use case on graphical visualization
- Design of storage architecture (design of a first draft)

DEDAGROUP

- Realization of UI mockup for Mistral platform, in continuous adaptation with the analysis of use cases
- Analysis for exposing observations through standard services (INSPIRE, OGC WMS, SensorThings)
- Ckan installation for Mistral with customizations:
  - Installing CKAN 2.8.2 with Docker Compose (5 containers: CKAN, SOLR, PostgreSQL/POSTGIS, REDIS, Datapusher).

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- Installing CKAN extensions (spatial, harvest, multilang, dcat, dcatapit).
- Creating a CKAN extension in order to customize CKAN's templates.

CINECA-DEDAGROUP

- CINECA team is having Sprint planning meeting every week and every fifteen days together with Dedagroup team in order to take stock of the activities and decide the following tasks
- First release of open data catalogue with Mistral installation of Ckan: entering datasets and resources of the observed and forecast data listed in the Deliverable D4.1

ARPAE

- Support to the development of the platform especially for the post processing functionality
  The deliverable 5.7 **High Availability Requirement Analysis for forecast data** has been delayed in order to favour the tasks of integration of Arpae archiving and postprocessing software, which were more urgent for the initial development of the Mistral Portal frontend and backend.

DPC

- Provide information about the meteorological data platforms already in use at the DPC.

ECMWF

- ecPoint-Rainfall 6-h ecflow suite has been successfully implemented on Galileo cluster for the use case Italy flash flood. Currently is running in serial mode, and works to implement it in parallel mode are in progress, with the collaboration of CINECA and ARPAE.
- COSMO variable-size neighbourhood post-processing and the blending with ECMWF ecPoint-Rainfall has been successfully tested at ECMWF system and the migration to Galileo cluster is in progress.

ARPAP

- Continuation of collaboration in the design of post-processing tools and procedures

2.4. Conclusions on results of the tasks of each activity where the partner has been involved, including the impact of the possible deviation on 1) the objectives of the action, 2) the completion of the planned activities and 3) the cost-breakdown

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Activity interim Report

During the **first semester** of the Mistral project, the main results achieved were:

- The Mistral project has been Kicked Off
- The Mistral public project web site was implemented and set up within the deadline (M3)
- The coordinator defined the Quality Control, Risk Management and IPR of the project within the deadline (M3)
- The partners disseminated through their own web sites the Mistral project objectives and expected results
- The Dissemination and Communication Plan has been defined at M3 and updated with the Coordinated Image within M6.
- The Mistral use cases and services requirements have been defined and released within the deadline (M5).
- The catalogue of observational and forecast data have been defined and a list has been created within the deadline (M5).

Some minor deviation with respect to the activities foreseen consists in a small delay of the delivery of the Data Harmonization Specifications. This activity is ongoing and will be finalized within M7.

During the **second semester** of the Mistral project, the main results achieved were:

- The specification for data harmonization has been defined (D4.2)
- The functional and non functional requirements for open data portal front-end and back-end have been defined (D3.2)
- The annual activity report has been collected and reported. (D1.4)
- A first Mistral hackathon has been set up with the participation and active involvement of several institutions very interested in the creation of a national weather open data portal
- The first release of Mistral post processing tools and Mistral meteo hub have been implemented for the forecast data (D5.3)
- The first release of Mistral Open data Catalogue has been implemented (D5.2)
- Mistral use cases for flash floods have been developed and tested in ECMWF, waiting to be effectively implemented on Galileo cluster.
- **An authorization request has been sent to regional functionality centers and currently it has been collected three authorizations**

Deviations:

- There was a small delay in the realization of the video tutorial on the web portal characteristics and functionalities. The delay is mainly due to the fact that, in order to work on the video tutorial, it was necessary to proceed only when the first release has been completed, i.e. at the end of M12. The work is in progress and it will be completed at the end of M13.

- There was a small delay in defining the requirement for open data re-use (D4.3). This task required the selection of a legal advice, through a bid. The work is in progress and it will be completed at the end of M13.

- The High Availability Requirement Analysis for forecast data (D5.7) has been delayed in order to favour the tasks of integration of Arpae archiving and postprocessing software, which were more urgent for the initial development of the Mistral Portal frontend and backend.

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3. VISIBILITY OF UNION FUNDING

What measures have been taken to publicize the Action, including EU funding (GA II.7.1)?

I SEMESTER

- Several partners published the information about Mistral on their web portal pages
- Several partners published the information about Mistral on their web portal pages
  - ECMWF https://www.ecmwf.int/en/research/projects/mistral
  - ARPAP http://www.arpa.piemonte.it/rischinaturali/tematismi/meteo/Collaborazioni-e-progetti/MISTRAL.html
  - DEDAGROUP https://www.dedagroup.it/public-services/mistral-meteo-italian-super-computing-portal
  - CINECA https://www.cineca.it/it/news/mistral-meteo-italian-supercomputing-portal
  - ARPAE https://www.arpae.it/dettaglio_notizia.asp?id=10384&idlivello=32

- The page about Mistral project published on ARPAE web site is published also on press agency *Agenparl* https://agenparl.eu/mistral-meteo-italian-supercomputing-portal/

- ARPAP has started the preparation of a Hackathon which will take place in May 2019
- ARPAP participated in the AFCEA Conference (Meteorologia: una scienza in continua evoluzione, analisi dei cambiamenti in atto), on 27 March 2019, presenting an overview of the COSMO modelling activities and the Mistral portal description and aims

II SEMESTER

- Hackaton event : a day of work to collect the needs of potential users of the portal in order to design the methods of displaying datasets and metadata, adapting them to the needs of the user.
  - It was organized in 9 topic/tables plus 1 Desk of meteo experts:
  - Media
  - Insurance
  - Agriculture
  - Transports
  - Energy production and transimssion / Settore produzione e trasmissione energia
  - Private weather forecast providers
  - Public administrations and local authorities
  - University
  - Turism and sport
  - Desk meteo - experts
  - In each table there were 7 to 10 people involved
- Information point on the Mistral project during the *European Night of the Researchers:* 3 roll-ups where exhibited and the leaflets were distributed.
- Presentation of a poster in the European Meteorological Society annual meeting in September 2019 in Copenhagen (Denmark). The title was “Creating an Open data Portal for Citizens: the MISTRAL Project” and it was included in the poster session “Creating value through Open Data”. The main points of the project were presented.

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