Proposal/Contract: 031874

CYCLOPS

CYber-Infrastructure for CiviL protection Operative ProcedureS

Report on raising public awareness and participation
(Deliverable D20)

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RE	Restricted to a group specified by the consortium (including the Commission Services)	X
CO	Confidential, only for members of the consortium (including the Commission Services)	

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D I S T R I B U T I O N   L I S T

PARTNERS:

DPC	INFN	IMAA	DDSC	CP-CH	EMA	TEI-CR	ANPCC	UMINHO
EXTERNAL EXPERTS								
OTHERS:								
CYCLOPS WEB SITE	http://www.cyclops-project.eu							

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1   INTRODUCTION

According to the CYCLOPS project annex I "Description of Work (DoW)" pag. 54: *"This deliverable is a document reporting the extent to which actors beyond the research community have been involved to help spread awareness and to explore the wider societal implications of the proposed work. It includes the content provided in the training sections, training activities, reporting and results"*

The document was due as project deliverable D20, and was the responsibility of the WP5 UMINHO co-leader partner.

1.1   PURPOSE OF THE DOCUMENT

The purpose of this document is to present actions taken during the Cyclops project lifetime in order to raise public awareness and participation, as well as the outcomes of these actions.

Dissemination and outreach have always been considered key points for accomplishing this, ever since the project planning phases. The actions are generally framed in the Work Package devoted to dissemination (WP5), although some of them may well be regarded as a horizontal action of the project.

1.2   APPLICATION AREA

The main target audience of this document is the CYCLOPS project officer and partners and all existing and future projects, initiatives and organisations, researchers and research groups, active in the related areas: Scientific Communities, GRID/ICT community, GMES community, End users (joint activities with other user groups) GMES/Civil Protection Agencies, Enterprises of Different size (SMEs, GEs)and Different sector (IT, Earth Observation, Security and Safety, etc.) were identified as a potential audience and may be inspired by the achieved results reported.

1.3   TERMINOLOGY

CYCLOPS   Cyber-infrastructure for CiviL protection Operative Procedures

RISICO   RISchio Incendi e COordinamento

WP   Work Package

GILDA   Grid INFN Laboratory for Dissemination Activities

GMES   Global Monitoring for Environment and Security

EGEE   Enabling Grid in E-sciencE

VO   Virtual Organization

VOMS   Virtual Organization Membership Service

WMS   Workload Manager Service

WCS   Web Coverage Service

WPS   Web Processing Service

Grid   a distributed infrastructure of computation and storage resources,
Middleware   a communications layer that allows applications to interact across hardware/network
               environments.
NGI   National Grid Initiative

2   EXECUTIVE SUMMARY

This report focuses on the "external dimension" of our project, i.e. its actions to make the outputs of the project public and make the relevant involved communities aware of our main results. We provide the list of our final deliverables classified in terms of deliverable type and dissemination level. In accordance with the nature of a Specific Support Action, all our deliverables are public PU and freely available on our web site or RE, which means that the access is public after explicit request.

The adopted methodology to carry out the dissemination activity, together with its goals, sources, targets, content and media have already been described in the deliverables D4 and D19. Other dissemination deliverables such as the Mid-term project conference D12 have extended the interested communities resulting in wider participation and audience. The final conference D21 has been planned as a European Workshop under the aegis of the European Commission and the United Nations with the main objective of discussing the necessary innovation for building a unified e-Infrastructure for Civil Protection applications in Europe.

The rest of the document is organised as follow:

Section 3 provides an overview of the Cyclops project by briefly presenting: the Cyclops Conceptual Model, the Projects, Objectives, Goals and the Work Packages. It introduces the general dissemination approach and the strategy adopted for this deliverable as an example of the OG_5.3 "defined dissemination activities".

Section 4 presents the most relevant aspects of the three planned Project Conferences. This kind of event was considered highly useful in order to target dissemination at specific audiences and on specific topics. They allow for the broadening of the opportunities to dialogue and to discuss the EGEE platform for CP with other national and transnational organizations.

Section 5 reports the two training events "on practical aspects of application's integration on grid" presented to the Civil Protection community, in order to establish the starting point for future design of a Civil Protection -and potentially GMES- Grid infrastructure. This section also presents the documentation made available to the participants during the training.

Section 6 reports the presence at external events, where oral and/or poster presentations about CYCLOPS were accepted. The contacts established with other related projects are also reported.

Section 7 concludes this report with a fragment of text from iSGTW review about EGEE'08

3   OVERVIEW OF CYCLOPS

CYCLOPS (Cyber infrastructure for CiviL protection Operative Procedures) is a Specific FP6 Project Support Action directed to the EGEE Project, aiming to bridge the existing gap between the GMES and Grid communities, with particular reference to Civil Protection applications.
Besides the dissemination activities required to put Civil Protection and Grid community representatives into contact with one another, one of the main objectives of CYCLOPS is the definition of research strategies and innovation guidelines for the building of a future European Civil Protection e-Infrastructure. As a result of a Civil Protection systems analysis and Civil Protection procedure use-cases analysis, a general architecture for the European Civil Protection e-Infrastructure has been proposed.

3.1   CONCEPTUAL MODEL

An existing Grid Platform (EGEE) can provide the coordinated sharing of computing, storage and communication resources of existing and enhanced Civil Protection Processing and Network Infrastructures and research centres involved in the emergency management procedures.
On top of the Grid platform, specific Spatial Data Infrastructures (SDI) can be implemented to build the infrastructure for Civil Protection applications. These are:
1. Advanced Grid services such as: Quality of Service management, orchestration services, Knowledge Grid services, etc.
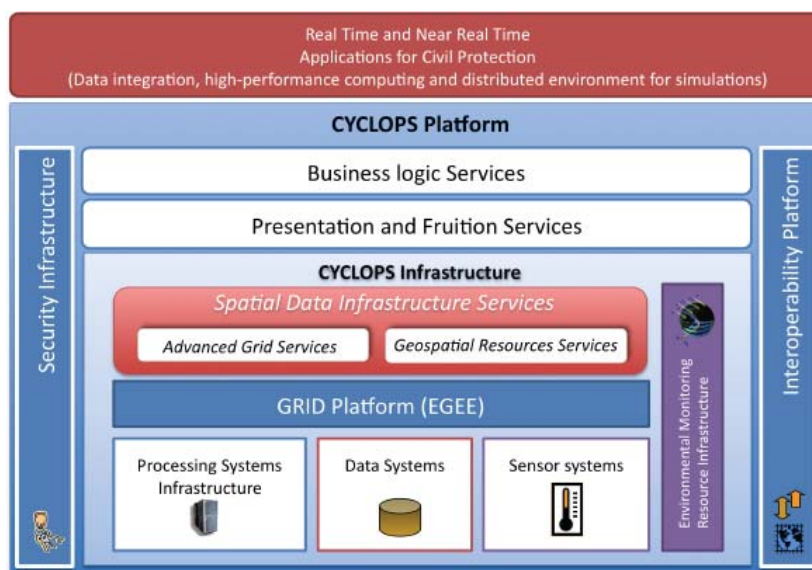2. Geospatial Resource Services for geo-spatial information access and sharing.

Fig. 1: The CYCLOPS interoperability framework.

These SDI Services form the so-called CYCLOPS Infrastructure, providing domain-specific services suitable for developing Grid-enabled applications for Civil Protection.

3.2   PROJECT OBJECTIVES AND GOALS

In order to carry out effective actions toward Cyclops' main goal, the following six project objectives were defined: PO_1) *To assure effective project management;* PO_2) *To assure effective technical activities;* PO_3) *To assure quality of the results;* PO_4) *To define CP community requirements for Grid platforms;* PO_5) *To carry out inter-dissemination between CP and Grid communities;* PO_6) *To prepare for future innovation and R&D projects*

The first three POs aim to assure the overall quality of the project, while the last three aim to define which results the project will contribute toward the Main Goal.
Being an SSA, CYCLOPS effectiveness and potential impact strongly depend on the inter-dissemination between the CP and Grid communities and on the preparation of exploitation strategies through innovation and R&D projects that CYCLOPS studies could initiate.

The Project Objectives are translated into Operational Goals (OG) which are reached by carrying out specific Tasks. The Operational Goals define the actions and the expected results of CYCLOPS as regards its POs.

Fig. 2 depicts a diagram showing the breakdown of the Main Goal, the Project Objectives (highlighting the key criteria to which they are relative), the Operational Goals and the Tasks collected in Work Packages, described in the WP forms.
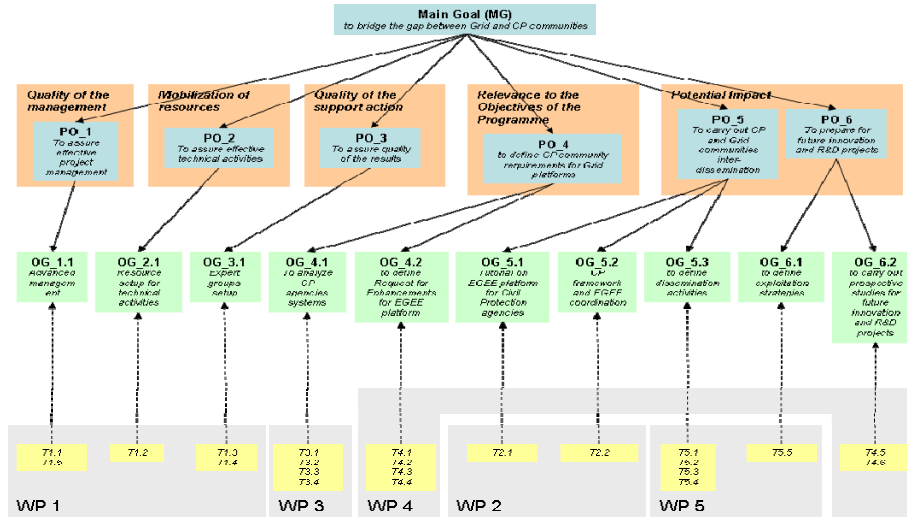

Fig. 2. CYCLOPS POs, OG and Work Packages.

Next, we briefly present a description of each of the formulated Operational Goals:

- **OG_1.1**-*Advanced Management*: to plan and organise effort to accomplish the expected CYCLOPS results
- **OG_2.1 -** *Resources setup for Technical Activities*: to assure an effective mobilisation of resources involved in carrying out any support activities concerning the project tasks
- **OG_3.1 -** *Expert Groups setup:* to provide a good quality support action, both for CP structures and procedures, and in applied technologies for risk prevention and management.
- **OG_4.1** – *Analysis of CP agencies systems*: to define the requirements of CP for Grid platforms and CYCLOPS through the analysis of European CP needs and available resources
- **OG_4.2** - *Request for Enhancements for EGEE platform:* to assure the Relevance to the Objectives of the Programme, in particular, a platform to allow the support of Civil Protection applications on the top of EGEE platform.
- **OG_5.1** -*Tutorial on EGEE platform for Civil Protection agencies:* to have an effective inter-dissemination between Civil Protection and Grid communities by presenting the EGEE platform to all possible users.
- **OG_5.2** - *Civil Protection framework and EGEE coordination:* to ensure the coordination between EGEE project and the development of the framework for the applications of Grid technologies to CP.
- **OG_5.3** - *To define dissemination activities*: to promote the exploitation of Cyclops project results by means of the widest CP and GMES community and interest in Europe.
- **OG_6.1** - *To define exploitation strategies*: the exploitation plan will consider a wide range of initiatives built on top of CYCLOPS output, such as R&D project start-up (funded by national or international bodies), cooperative research activities, SMEs and GEs involvement, coordination actions for existing projects (both at European and International level).

> o **OG_6.2** - *To carry out perspective studies for future innovation and R&D projects:* to provide studies that could be the basis for future R&D projects in the field of Grid technologies applied to the GMES context and for defining the innovation strategies for Civil Protection as regards Grid technology adoption.

3.3   WORK PACKAGES

CYCLOPS project comprehends the following five work packages:

- WP 1 "Management objectives" includes five tasks: T1.1) is devoted to the day-to-day activities, while the other four are dedicated to preliminary activities for the start of the project. In particular T1.5 aims to create a collaborative work environment and along with T1.1 facilitate an advanced management for assuring the quality of the management itself. T1.2) is dedicated to the setup of the working group and it is essential to assure a correct mobilisation of the resources that are essentially human resources. The other two tasks aim to create the expert groups which are composed of members with high expertise in different domains (CP agencies work and Grid/IC technologies).

- WP 2 "Coordination with EGEE activities" is divided into two tasks dedicated to: T2.1) the dissemination of EGEE architecture and middleware to CP agencies in order to inform them about the possibility of Grid platforms; T2.2) the coordination between EGEE/EGEE-2 and CYCLOPS to provide CYCLOPS members with the information about EGEE middleware evolution, and provide EGEE technical group with knowledge about Civil Protection requirements resulting from CYCLOPS activities;

- WP "3 Civil Protection systems analysis": four tasks were devised to carry out an extensive study about Civil Protection organisation and resources whose analysis may also be used as an input for WP4 and to define Civil Protection community requirements for Grid platforms: T3.1) to analyse the needs of the different Civil Protection agencies/systems?? and also to compare them in order to identify common and peculiar processes; T3.2) to provide a view of the human and technological resources available to and used by the Civil Protection systems, both to identify the required enhancement to support an EGEE-based Grid platform and to analyse the problem related to the homogenization of resources; T3.3) to identify significant use-cases as this is essential for the correct definition of system requirements, in terms of usage scenario, involvement of organisations (research centres, data providers, etc.), and interaction of human and technological resources to drive the study of the research strategies for the design and development of the infrastructure; T3.4) use-cases can drive the study of the research strategies for the design and development of the infrastructure needed to support Civil Protection applications, paying particular attention to the problem of data security and policies which has both organisational and technical concerns

- WP 4 "Research and Innovation Strategies" is divided into six tasks aimed at defining research strategies to enhance EGEE for enabling Civil Protection applications. The first four are dedicated to a detailed analysis of how to use EGEE/EGEE-2 platform in a Civil Protection context. T4.1 is dedicated to the installation of the EGEE platform in the real context of the Civil Protection agency members of the project. T4.2 is a preliminary activity to highlight weaknesses of current EGEE platform implementation in supporting Civil Protection applications. T4.3 analyses the EGEE extensions needed to fully support Civil Protection applications. Finally T4.4 is dedicated to analysing the porting of applications in the EGEE platform. All these tasks results are summarized in form of Request for Enhancement (RFE) to EGEE community, reporting the main features that need to be improved and the fields where greatest research effort has to be planned. T4.5 and T4.6 are dedicated to the definition of

R&D strategies and innovation strategies for Civil Protection agencies, and are important output for increasing the potential impact of the project, since they prepare two important aspects of future exploitation: the start-up of future R&D projects in different contexts and the guidance of innovation actions for Civil Protection agencies.

- WP5 "Dissemination and Exploitation" defines the activities aimed at spreading the results of CYCLOPS project to different communities by means of five tasks: T5.1) to promote the concept of the project in order to raise awareness, create interest and encourage participation / follow-up actions; T5.2) to draw up a dissemination plan, to identify target audiences, to detail actions, timing and procedures for the dissemination activities, the expected benefits, and to describe which methods of dissemination will be used by the partners; T5.3 to inform constantly about the progress of the project for its full duration and provide feedback to the project; T5.4 This activity aims to disseminate the results of the project to proper target audiences (Civil Protection, research centres, SMEs,etc.); T5.5 This activity aims to define the plan for the exploitation of CYCLOPS results.

3.4   DISSEMINATION APPROACH

As stated in the project annexe, one of the main points of Cyclops is to bridge the gap between Grid and GMEs and CP in order to broaden the opportunities for dialogue and discussion of the EGEE platform support for CP applications.

Therefore, it envisages the increasing awareness of the operational community, by providing them with advanced grid knowledge, in order to make them capable of exploiting the infrastructure, and eventually involving them in other initiatives such as the National Grid Initiatives.

WP5 principle objective is to make the project existence and main results widely available in order to build future development on an extended basis of users. Accordingly, T5.4 activity aims to address several audiences, including, of course, the scientific community, for the creation and enlargement of an active user community for the project. To achieve that objective, dissemination and exploitation activities have been carried out during the entire Cyclops project life time.

The CYCLOPS Project objectives, activities and results have been presented in major events involving the interested communities. These have included conferences and workshops, with four major events (two workshops and two conferences) having been organized over the project lifespan, as well as technical training and schools. Great attention has also been devoted to events and initiatives related to interoperability and inter-community activities, such as OGC/OGF, and the ongoing activities for setting up the Infrastructure of Spatial Information in Europe.

Finally, the Project WEB site is the basic tool put in place to disseminate the project results to the potentially non-identified public targets. Through the web sites, persons and entities interested in GRID and GMES integration will find will have access to general information, on-going activities and public deliverables.

3.4.1   Raising public awareness and participation

Deliverable D20, as one of the measures of progress and success of OG_5.3 "defined dissemination activities", has been specifically targeted to report the actions carried out in order to disseminate CYCLOPS activity and results to industry, SME, Public Administrations and the general public. In particular, it is intended to promote awareness among operational people, of CYCLOPS and its future developments, as they are able to relay information and disseminate such knowledge to explore the societal implication of the achieved results in their different work environments.

The principle sources of information used to elaborate this document come from the project activities' specific actions, undertaken to disseminate project results such as EGEE-II project conference and user forum, workshops and meetings. Information provided by conference

organization and participation and other knowledge dissemination events will also be used to report the extent to which actors beyond the research community have been involved.

In particular, a detailed report will be provided regarding the three initial planned conferences: **project open conference** (in Italy, Roma – DPC) in 2007, to allow Grid, Civil Protection and GMES experts to broaden the opportunities for dialogue and discuss the EGEE platform for Civil Protection applications with other national and transnational organizations. **project mid-term** (in Portugal, Porto – UMinho/ANPC) and **project final conference** (in Italy, Roma – DPC) in May 2008, to disseminate Cyclops first results, and in October 2008, to present Cyclops final results, respectively.

Also reported are the training activities especially directed towards the Civil Protection community, at **two Training Workshops** (In Italy, Bologna - INFN: In Greece, Chania - INFN) which also includes information provided during the end users training sessions.

Finally the raising of public awareness of the project is closely related to the dissemination of the project results, the effectiveness of which is best measured by the outcomes of the project, extensively reported in Project results presentation D18.

4   PROJECT CONFERENCES

The organization of conferences was considered highly useful to target dissemination at specific audiences and on specific topics. In Table 1 is a list of the major organized events.

Event	Location	Organization	Dates	Related Link
open conference	Roma-Italy	DPC	16/06/2007	cyclops events
mid-term conference	Porto-Portugal	UMinho & ANPC	14-17/05/2008	Ibergrid08 conference
final conference	Roma-Italy	DPC & UMinho	05/12/2008	cyclops events

Table1 - Major dissemination events

4.1   OPEN CONFERENCE

The Project Open Conference was held in Rome on 16/6/2006 with the objective of presenting CYCLOPS to GMES and Civil Protection communities. The event was also announced in **EU-MEDIN News** (see http://www.eu-medin.org/article.php?sid=932).

A full report of the agenda displayed in table 2, is available as deliverable D2.

9:00 Welcome: DPC (A.MIOZZO - DPC)

1- Objective of the CYCLOPS project (B. DE BERNARDINIS - DPC) :
2- GMES fast-track services and Civil Protection Community (B. DE BERNARDINIS - DPC)
3- Civil Protection System Analysis and Requirements and needs (J. BEQUIGNON – DDSC)*
4- Research and Innovation Strategies definition (S. NATIVI - IMAA)
5- Coordination with EGEE activities (M. VERLATO - INFN)
11:00 Coffee Break

11:15 European Initiatives and Programmes
6- DG-INFSO Salutation (C. Morais Pires – DG-INFSO)*
7- ESA initiatives (L.FUSCO – ESA)
8- GMES initiative (U.GIOVINE – Italian delegate of the GMES Advisory Council)
12:15 A Grid Platform for Civil Protection Applications
  - EGEE Platform (M. MAZZUCCATO – INFN)
12:30 Open forum & discussion (answer: Cuomo, De Bernardinis, Mazzucato, Nativi and Vallianatos)

13:30 Lunch
14:50 Visit to Emergency Operative Centre and Functional Centre
16:30 Conclusions and Wrap-up (Anna Scipioni - DPC)

Table 2 – Open conference agenda

About 61 people attended the event, (see list of participants) including several representatives of Institutions and Societies in GRID and GMES, not participating in the Cyclops consortium.
The links to the available presentations are available in table 3.

Presentation	Institution	downloads
1/2	DPC	http://www.cyclops-project.eu/demo/pdf/DPC.pdf
3	DDSC	http://www.cyclops-project.eu/demo/pdf/DDSC.pdf
4	IMAA	http://www.cyclops-project.eu/demo/pdf/CNR-IMAA.pdf
5	INFN	htttp://www.cyclops-project.eu/demo/pdf/INFN.pdf
7	EIP	http://www.cyclops-project.eu/demo/pdf/EIP.pdf
8	GMES	http://www.cyclops-project.eu/demo/pdf/GMES.pdf

Table 3 – Open conference presentations

The introduction to the technological framework and the main Work Packages of the project raised a good level of interest among the participants. An open forum was held on these topics, followed by a visit to "*Emergency Operative Centre*" and "*Functional Centre*" and then a closing session.

4.2   MID-TERM CONFERENCE

The Mid-Term Conference was planned to coincide with a major event conference, already involving the interested communities (such as CP agencies) in order to reach wider participation and audience. It was fully integrated within the 2nd Iberian Grid Infrastructure Conference, held in Porto on 12th – 14th May, 2008, at Faculdade de Engenharia da Universidade de Porto.

The 2nd IBERGRID conference was an excellent opportunity to gather together an enlarged community of academics, researchers, students, industry specialists and practitioners in all branches of knowledge, sharing a common need, that is, powerful computing, visualization and/or storage resources. Participants wishing to attend the Cyclops sessions had the opportunity of registering for this conference day only.

Presentations on the CYCLOPS Project from both partners and invited talks were included in the conference programme.

4.2.1   Programme

On Wednesday 14 May the Ibergrid´2008 conference programme focused on the importance of developing enabling e-infrastructures and virtual organisation services to support applications that anticipate, manage or mitigate crisis situations and other problems related to environment and security issues, which are the topics of interest of The Cyclops Project.

Cyclops dedicated programme in table 4 included a Project Cyclops opening session, an invited talk from Cyclops and a panel to debate the European Civil protection issues. During the afternoon the programme included several specific Cyclops open sessions focused on Civil Protection and Earth Science issues. The programme concluded with a Cyclops - Live Demonstration of a CP application porting to GRID

9:45 Project CYCLOPS - Opening Session –
   "*Welcome*" – Susana Silva, ANPC
   "*Italian Civil Protection Organisation and Tasks*" - Roberto Sorani, DPC
Cofee Break
11.00 Invited Talk – Stefano Nativi

(1)   " *The CYCLOPS Project*"
11:30 Project CYCLOPS Panel "*European Civil Protection Infrastructure*"
   Carlos Pires – chair (EC)
   Jorge Papaspiliou (HTCI)
   Vincenzo Cuomo (CNR-IMAA)
   Mirco Mazzuccato (INFN)
   Stefano Nativi (CNR-IMAA)
   Xavier Viegas (DEMUC)
   Rui Almeida (ANPC)
   Roberto Sorani (DPC)
13.0   LUNCH
14:30 CYCLOPS Sessions
   Chair – Carlos Pires (EC), co-chair - Pierre-Alain Ayral (EMA)
   "*Geoinformatics and Grid*" - Monique Petitdidier (IPSL)
   "*Decision Support Tools in Forest Fire Management*" - Xavier Viegas (DEMUC)
   "*Flash Flood management: The French Case Study*" - Vincent Thierion (EMA)
   "*Grid Technologies and sensors*" Joaquim Macedo (UMinho)
Cofee Break
16.30 Live Demonstration
   Chair – António Pina (UMinho)
   "*RISICO porting to EGEE*"
   Paolo Mazzetti (IMAA)
   Valerio Angelini (IMAA)
   Marco Verlato (INFN)

Table 4 – Mid-term conference programme

There was also an opportunity for Cyclops project to present its results and a demonstration at a stand, in the conference exhibition area, which included posters, leaflets and a live running demonstration of running RISICO in the GRID.
Most of the documents presented by the participants of the Mid-Term Cyclops Conference may all be downloaded (see http://www.ibergrid.eu/2008/presentations.html) from the official Ibergrid'2008 conference site. Links to the most significant presentations and posters made by people from the Cyclops project are also available in table 5.

Type	Institution	downloads
Slides	DPC	/https://pop.cp.di.uminho.pt/cyclops/wp-content/uploads/2008/11/opensession-robertosorani.pdf
Slides	IMAA	https://pop.cp.di.uminho.pt/cyclops/wp-content/uploads/2008/11/presentation_nativi_2_ibergrid.pdf
Slides	IMAA	https://pop.cp.di.uminho.pt/cyclops/wp-content/uploads/2008/11/presentation_cyclops_egw_mazzetti.pdf
Slides	EMA	https://pop.cp.di.uminho.pt/cyclops/wp-content/uploads/2008/11/thierion-flash-flood.pdf
Slides	IMAA	https://pop.cp.di.uminho.pt/cyclops/wp-content/uploads/2008/11/cyclops_intro_porto_2008
Slides	IMAA	https://pop.cp.di.uminho.pt/cyclops/wp-content/uploads/2008/11/cyclops_how_we_did_it_porto_2008.pptx
Poster	UMinho	https://pop.cp.di.uminho.pt/cyclops/wp-content/uploads/2008/11/roll-egee-ibergrid08.pdf
Video	IMAA	https://pop.cp.di.uminho.pt/cyclops/wp-content/uploads/2008/11/Risico_demo_ibergrid08.pdf
Poster	UMinho	https://pop.cp.di.uminho.pt/cyclops/wp-content/uploads/2008/11/sensors-ibergrid08.pdf
Poster	INFN	https://pop.cp.di.uminho.pt/cyclops/wp-content/uploads/2008/11/poster-user-forum-081.pdf

Table 5 – Poster,Video and Presentations at Ibergrid08

4.2.2   Open Sessions

The Portuguese Civil Protection (ANPC) Agency officially welcomed all present to the CYCLOPS sessions stressing how important it is for CP agencies to work together with the scientific community to provide decision-makers with a higher level of primary information data.

An Invited Talk entitled "The CYCLOPS Project" was presented by the Cyclops Technical Manager. This focused mainly on the technical aspects of the project, beginning with a general overview of CYCLOPS, its main activities, applications and initiatives. A definition of the Global Monitoring for Environment and Security (GMES) concept followed the outlining of the importance of developing enabling e-infrastructures and virtual organisation services to serve specific GMES communities, such as CP. Afterwards, taking into account the specific needs of the CP community (interoperability), the Cyclops framework and services were described before reporting on the technological aspects of two test case applications: G-RISICO (Italian CP application for Wild Fire Risk Assessment) and Flash Flood Forecast (French CP application for Flood Warning system). The results for G-RISICO were close to expectation (spatial accuracy) providing architectural proofs of concept.

Carlos Pires from EC made the closing remarks of the Project CYCLOPS Panel "*European Civil Protection Infrastructure*" : "from an outside observer's point of view, CYCLOPS is a showcase of communities talking together. There is now a complete application ready to be shown. He agreed that there would not be many opportunities to change the existing organisation and that CP was a major issue as it involved planning resources for worst case scenarios. " … "He spoke of his experience as ICT manager which allowed him to see clearly the problems relating to self-centred communities with very specific data requirements. Though the needs of these communities must be accommodated, there is a need to enforce user community area for use of e-infrastructure. They must be more open to the new technologies and systems provided, and need to have common languages. ".. "The lessons learned from the CYCLOPS Project were good and the road map is also good."

The final Cyclops and Ibergrid session, was intended to give a detailed explanation and demonstration of how the RISICO model (Italian application for Wild fire Risk Assessment) actually functions when ported to EGEE. Following a brief introduction to the key aspects and architectural framework of the Grid, the presentation proceeded to a description of RISICO, in operation since 2003.

The session then proceeded to give a live demonstration of using the model on the Grid. Four main panels were indicated:
   o   Run Management (input parameter selection/ temporal and spatial domain/ QoS)
   o   Services View (web processing services-WCS/ web coverage services-OGC)
   o   Grid Status (job status/ input preparation/ progress/ output assessment)
   o   Output View (visual presentation of forecast)

4.3   FINAL CONFERENCE

The Project Final Conference will be held in Rome on 5/12/2008. Initially planned to present CYCLOPS to GMES and Civil Protection and Earth Observation communities, some positive results obtained within the framework of the project indicated there were already conditions to launch a European Workshop "*Towards a European e-Infrastructure for Civil Protection*" organized under the aegis of the European Commission and the United Nations, with the main objectives of:

   o   discussing the research areas and innovations to be considered and developed in order to meet the needs for an e-Infrastructure for Civil Protection applications in Europe

o   recognizing the multi-disciplinary and cross-disciplinary aspects related to such an advanced e-Infrastructure, starting giving rise to a multi-disciplinary forum to shape the next future research agenda for a European Civil Protection e-Infrastructure.

The Workshop was conceived as an open forum where relevant organisations representing the three Communities were invited to contribute to the Conference, by providing key-note speeches and presentations, namely: OGF (Open Grid Forum), OGC (Open Geospatial Consortium) and ONU as well as European Civil Protection Authorities, European Commission and other scientific and industrial organisations and Communities.

Table 4 shows a draft of the final conference programme.

Opening:
9.30   R.Sorani – Cyclops Project Manager
9:45   G. Bertolaso - Capo Dipartimento Protezione Civile
10:00 M. Campolargo – EC - Director GEANT & e-Infrastructure
10:30 S.Nativi – CNR/IMAA : "*Cyclops guidelines for research and innovation strategy for a European Civil Protection e-infrastructure*"
1. Standardization frameworks and future perspectives
11:00 (to be announced) – OGC
11:30 C. Lee - Open Grid Forum (OGF)
12:00 P. Albrito - UN/DR
12:30   Lunch
Demo of Grid-enabled Civil Protection applications at booth:
    RISICO – "*Wild Fires Risk Assessment*"
    ALHTAIR – "*Flash Flood Risk Management* "
2. Enabling e-Infrastructures
13:30 M. Mazzucato - Istituto Nazionale di Fisica Nucleare (INFN)
14:00 F. Siccardi - Università di Genova Downstream GMES services
14:30   L. Fusco - ESA : "*ESRIN Data and e-infrastructures in support of Civil Protection actions: from G-POD to GENESI-DR*"
3. Civil Protection requirements and experiences
15:00   Civil Protection presentations (TBD)
16:30   Round table

Table 6 – Final conference programme (draft)

5   CYCLOPS TRAINING AND DOCUMENTATION

According to the Cyclops Dissemination Plan D4, INFN, as coordinator of the WP2, was in charge of carrying out, whenever possible and in cooperation with the EGEE, corresponding activities, dissemination and training event actions to present the architecture of the EGEE middleware and its planned evolution to the Civil Protection community ; deliverable D5 detailed the training events plan. Furthermore all the documentation and tutorials should be made available to the public on the project web site.

During the life time of the project two training events were planned and accomplished, reported in detail in D0 andD13 respectively. The main web pages of both events with the complete agenda and all of the presentation in PPT and/or PDF format is available from the project portal www.cyclops-project.eu → left side menu "Events" →.

The two training events final agenda also share the following general description: "*this is a user oriented tutorial, with both theoretical and hands-on sessions. A session for application developers about the use of gLite APIs and examples of applications successfully ported on the grid is also scheduled. Only a basic knowledge of Linux user environment (Shell, SSH) and basic concepts of C++ and/or Java programming (only for the gLite APIs session) is requested of each trainee to follow the course*".

5.1   DOCUMENTATION

A document describing the EGEE platform "EGEE cookbook: a guide for Civil Protection Grid users" has been produced as the deliverable D7 to guide users during the sessions. The objective is to help users in their first steps into the grid.

To complement this, two guides have been written and published as wiki pages for CYCLOPS VO users. The first describes in detail the whole infrastructure and services, and the second may be used as a guide for helping site managers to deploy gLite resources enabling CYCLOPS VO. The wiki pages are accessible as Technical Grid Links from Cyclops web page http://www.cyclops-project.eu/Default.aspx?id_menu=12 .

The wiki page basically consists of two main wiki areas: the first linking to the guides referred to above and the second , related to the Grid Open Geospatial Consortium Web Services Working Group.

5.2   CYCLOPS FIRST TRAINING WORKSHOP

The First Training Workshop was held in Bologna (Italy) 11-13/4/2007 at the INFN-CNAF centre. The main page of the event is accessible from https://agenda.cnaf.infn.it/conferenceDisplay.py?confId=9.

As may be seen in table 6, the first half-day of the workshop focused on the CYCLOPS project presentation and related activities, given by the Project Manager and the CNR-IMAA, DDSC-EMA and DPC representatives. The agenda proceeded with an invited talk from Engineering ingegneria Informatica s.p.a. about the "Potential impact of adopting Research Infrastructure in ICT key areas" followed by an EGGE overview and the presentation of GILDA T- infrastructure.

09:00 Welcome

CYCLOPS project presentation and related activities

09:30   project overview (20') (Slides) Roberto Sorani (DPC)
09:50 activities at CNR-IMAA (30') (Slides) Stefano Nativi (CNR-IMAA) , Paolo Mazzetti (CNR-IMAA)
10:20 activities at DDSC-EMA (20') (Slides) Vincent Thierion (LGEI (EMA))
10:40 activities at DPC (10') (Slides) Corrado De Rosa (DPC) , Marco Verlato (INFN - PADOVA)
10:50 CIMA activities for Civil Protection (20') (Slides) Nicola Rebora (DPC/CIMA)

11:10 coffee break
11:40   Potential impact of adopting Research Infrastructure in ICT key areas (20') (Slides) Lanfranco Marasso (Engineering ingegneria Informatica s.p.a.)

EGEE Overview

12:00 EGEE Project and Middleware Overview (30') (Slides) Marco Verlato (INFN - PADOVA)
12:30 GILDA t-infrastructure (30') (Slides) Tony Calanducci (INFN Catania)
13:00 lunch

Security theory and hands-on

14:00 Authorization and authentication in gLite (1h00') (Slides) Emidio Giorgio (INFN-CATANIA)
15:00 Practice on authentication and authorization (40') (Practice 1/2/3) Emidio Giorgio (INFN-CATANIA)

Information System theory and hands-on

15:40 Theory on information system : BDII, R-GMA (30') (Slides) Fabio Scibilia (INFN Catania)

16:10 coffee break
16:30 Practice on Information System (30') (Exercise) Fabio Scibilia (INFN Catania)

Data Management theory and hands-on

17:00 Theory on gLite Data Management System (1h00') (Slides) Tony Calanducci (INFN Catania)
18:00 Practice on gLite Data Management System (30') (Slides) Tony Calanducci (INFN Catania)

Table 6 – Bologna:1st day

After lunch, the workshop started with a description of the Grid Security Infrastructure and X509 certificates also showing how to manage personal certificates. The training course proceeded both with theoretical lessons and practical exercises touching on the following gLite middleware components: Information System, Data Management and Job Management.

The first part of the second day, see table 7, started with a presentation of AMGA, a tool that enables access to Relational Database via grid, followed by an overview of the GRelC and G-DSE middleware . Both products adopt the same security mechanism of gLite and are capable of publishing their status on the gLite information system, allowing for their easy integration in a gLite based infrastructure.

The last part of the day was dedicated to the theory and practical aspects of Job Management.

AMGA metadata catalog theory and hands-on

09:00 Theory on AMGA metadata catalog (30') (Slides) Tony Calanducci (INFN Catania)
09:30 Practice on AMGA metadata catalog (30') (Exercise) Tony Calanducci (INFN Catania)

Grid Access to relational DB: GRelC

10:00 The GRelC Project: extreme performances managing grid-databases (1h15') (Slides) Sandro Fiore

11:15 coffee break

Grid Access to relational DB: G-DSE

11:45 The Grid-Data Source Engine: theory and hands-on (1h15') (Slides) Claudio Vuerli (INAF Trieste)

13:00 lunch

Job management theory and hands-on

14:00 Theory on gLite WMS : Architecture, command line, JDL (1h00') (Slides) Enrico Fattibene (INFN CNAF)
15:00 Practice on gLite WMS : job submission and monitoring, JDL (1h00') Enrico Fattibene (INFN CNAF)

16:00 coffee break

Special Jobs theory and hands-on

16:30 Theory on Parametric Jobs, Collection, DAG and MPI (1h00') (Slides) Emidio Giorgio (INFN-CATANIA)
17:30 Practice on special jobs (1h00') Emidio Giorgio (INFN-CATANIA)

Table 7 – Bologna:2nd day

On the last day, the first Cyclops training workshop concluded with the presentation of the APIs used to enable the porting of the application software over gLite and some examples of application in different scientific fields, already ported to grid.

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gLite APIs examples and hands-on

09:00 Examples of source code calling gLite API (1h00') (Slides) Fabio Scibilia (INFN Catania)
10:00 Practice on gLite APIs (1h00') (document) Fabio Scibilia (INFN Catania)

11:00 coffee break

Examples of applications ported on grid

11:30 Examples and description of grid application (1h00') (Slides) Emidio Giorgio (INFN-CATANIA)

Table 8 – Bologna 3rd day

A total of 14 people attended the event, 6 of them coming from institutions not strictly related to the CYCLOPS project activity. The overall evaluation parameter,by means of a form filled in anonymously by the participants, resulted in a score of 5.

5.3 CYCLOPS SECOND TRAINING WORKSHOP

The Second Training Workshop was held in Chania (Greece) on 5-7/5/2008, at the conference room of the Panorama Hotel. The welcome address to the workshop was made by the Vice Rector of TEI-Crete Institute, Prof. Kaliakatsos and the Head of Civil Protection of Chania Prefecture, Mr. Koukianakis.

As may be observed from tables 9, 10 e 11, the content of the workshop was very similar to the content provided in the previous training workshop. In effect, the main targeted audience was the same but participation was enriched by people from CYCLOPS partners CP-CH, TEI-CR and UMinho who could not attend the previous event.

The first half-day of the workshop was dedicated to a number of presentations focused on the CYCLOPS activities, and given by the local hosting CYCLOPS partner TEI-Crete, the Project Manager and the CNR-IMAA, EMA and CIMA-DPC representatives. A talk from a DORII project representative was also scheduled as the activity of DORII project was well related to Civil Protection applications.

The rest of the day focused in depth on the four main areas of the gLite middleware architecture: Security, Information System, Job Management and Data Management, supported by theoretical lessons and practical exercises, experienced by each student connected to the GILDA infrastructure.

09:00 Welcome
   Vice Rector of TEI-Crete Institute, Prof. Kaliakatsos, and
   Head of Civil Protection of Chania Prefecture, Mr. Koukianakis.

   GMES, Civil Protection and CYCLOPS overview

09:30 T.E.I. of Crete involvement in GMES and Civil Protection (30') (Slides) Filippos Vallianatos (TEI-Crete)
10:00 CYCLOPS project overview (1h00') (Slides) Roberto Sorani (DPC)

11:00 coffee break

   CYCLOPS Platform design and use cases

11:30 The CYCLOPS Platform: geospatial services implementation (30') (Slides) Valerio Angelini (CNR-IMAA)
12:00 The Forest Fires risk management use case (15') (Slides) Mirko D'Andrea (CIMA/DPC)
12:15 The Flash Flood use case (15') (Slides) Vincent Thierion (LGEI (EMA))
12:30 DORII: Deployment of Remote Instrumentation Infrastructures (30') (Slides) Andrea Del Linz (Sincrotrone Triese S.C.p.A.)

13:00 lunch

   EGEE Overview and Training Introduction

14:00 EGEE Project and Middleware Overview (30') (Slides) Marco Verlato (INFN)
14:30 The GILDA t-Infrastrucure (30') (Slides) Antonio Calanducci (INFN Catania)
   Security theory and hands-on
15:00 Authorization and authentication in gLite (40') (Slides) Stefano Dal Pra (CNAF - INFN)
15:40 Practice on authentication and authorization (20') (hands-on)

16:00 coffee break

   Information System theory and hands-on

16:30 Theory on information system : BDII (30') (Slides) Elisa Ingra (INFN Catania)
17:00 Practice on Information System (30') (hands-on)

Table 9 – Creta:1st day

The agenda of the second training day mostly consisted of lectures and topical exercises on gLite middleware architecture. At the end of the day, a dedicated session was scheduled to provide guidelines for joining the real production grid infrastructure and in particular the official recognized CYCLOPS VO, both as users and site managers.

Job management theory and hands-on
09:00 Theory on gLite WMS : Architecture, command line, JDL (1h00') (Slides) Stefano Dal Pra (CNAF - INFN)   **10:00** Practice on gLite WMS : job submission and monitoring, JDL (1h00') (hands-on;   hands-on)
11:00 coffee break   **11:30**   Special Jobs theory and hands-on   **11:30** Theory on Parametric Jobs, Collection, DAG and MPI (1h00') (Slides) Elisa Ingra (INFN Catania)   **12:30** Practice on special jobs (30') (Slides ;   hands-on)
13:00 lunch
Data Management theory and hands-on
14:15 Theory on gLite Data Management System (45') (Slides) Tony Calanducci (INFN-Catania)   **15:00** Practice on gLite Data Management System (1h00') (hands-on   )
16:00 coffee break   **How to join the CYCLOPS VO (slides)**

Table 10 – Creta:2nd day

The last day included the presentation of the new Secure Storage Service, a service integrated with the gLite middleware developed as a solution to guarantee confidentiality and integrity of data stored in the Storage Element. This advanced capability of gLite middleware emerged as a request for enhancement of the current EGEE platform to satisfy Civil Protection requirements, reported in deliverable D14.

The final part of the day included the presentations of the application porting strategies carried out to grid-enable two CYCLOPS selected use cases, the SPC-GD and RISICO application. The workshop concluded with a slot reserved for a final preparation of the RISICO Live Demonstration, scheduled for the following week at the Mid-Term CYCLOPS Project Conference, to be held in Porto during the Ibergrid08 Conference.

gLite Metadata and Secure Storage Management
09:30 The AMGA metadata catalog (45') (Slides) Tony Calanducci (INFN Catania)   10:15 Practice on the AMGA Metadata Catalog (30') (hands-on)   10:45 A Secure Storage Service for the gLite Middleware (30') (Slides) Tony Calanducci (INFN Catania)
11:15 coffee break
11:30 Feedback from attendees (15') (feedback form)
Examples of Civil Protection applications ported over grid

11:45 Porting the French Flash Flood system on CYCLOPS Platform (30') Vincent Thierion (LGEI (EMA))
  12:15   Porting RISICO on the CYCLOPS Platform (30') Valerio Angelini (CNR-IMAA) , Stefano Dal Pra (INFN-Padova)
  12:45 Live demonstration of RISICO running over grid (30') Mirko D'Andrea (CIMA/DPC)

RISICO Demo Rehearsal

Table 11 – Creta:3rd day

A total of 31 people attended the event. The overall evaluation parameter, computed from anonymous feedback forms as described in D17, resulted in a score of 4.45.

6 PRESENTATIONS AND OTHER DISSEMINATION ACTIVITIES

Several papers and posters were produced throughout the lifetime of the project. Talks and demonstrations were also considered major contributions to the raising of public awareness of the project. From the list available in D18 it can be seen that the project successfully attracted participation beyond the research community.

6.1 EXTERNAL EVENTS

The table below summarizes the list of external events where oral and/or poster presentations about CYCLOPS were accepted:

Event	Place	Type	Audience	Partners	Comment
EGEE'06	Genève	Poster	Grid communities, decision makers, resource providers	IMAA INFN	WCS over EGEE
2nd GRID & e-Collaboration Workshop for ES and Space Community	Frascati	Talk	Grid, Earth Science and Space R&D Communities	DPC CNR-IMAA	CP applications requirements and research issues.
InGrid '06	Braga	Invited Talk	Grid user, industry communities, decision makers	IMAA	Overview of Cyclops Project
European GeoInformatics Workshop	Edinburgh	Invited Talk	Stakeholders CP Protection	IMAA INFN	Overview of Cyclops Project
Open Grid F20	Manchester	Invited talk	Research, CP, Industry and Stakeholders	IMAA	Overview of Cyclops Project
2nd EGEE User Forum	Manchester	Talk	Research, Industry Community	INFN	Implementation over the EGEE Platform
EGEE'07 Conference	Budapest	Poster Demo	Grid user, industry communities, decision makers	IMAA INFN	Geospatial services on Grid platform for CP
SC07 Conference	RENO	Poster	Scientists and Engineers	INFN	Geospatial services on Grid Platform for CP

Table 12 – Summary of participation in events 2006-2007

CYCLOPS dissemination activity was also carried out towards communities which were not strictly grid related , e.g. giving presentations at the European Geo Informatics Workshop (2007), at the XXIV General Assembly of the International Union of Geodesy and Geophysics (IUGG 2007), at the General Assembly of the European Geosciences Union (EGU 2008).

Event	Place	Type	Audience	Partners	Comment
3rd GRID & e-Collaboration Workshop for ES and Space Community	Frascatti	Presentation	Stakeholders, Civil Protection	IMAA	CYCLOPS and the disaster management experiences
3rd EGEE User Forum	Clermont-Ferrand	Poster Presentation	GRID R&D Scientists and business organizations	INFN IMAA	Grid computing for wildfire danger assessment: porting RISICO on gLite
IBERGRID'08: 2nd Iberian Grid Infrastructure Conference,	Porto	Posters (4) Papers (2) Demo Invited talk	academics, researchers, students, industry	ALL	Project Overview, G-RISICO demo sensors, site administration
Open Grid Forum 23	Barcelona	Invited talk	Stakeholders, Industry, Civil Protection	IMAA	Geosciences services on the grid
EGU2008	Vienna	Paper (2)	Geoinformatics R&D Community	IMAA, INFN and TEI	G-RISICO *Challenges in Computational Solid ES*
EGEE'08 Conference	Istanbul	Poster (2) Demo	Scientists , academic and business	UMINHO IMAA INFN	G-RISICO, EGEE site administration
SC08:	Austin	Poster Demo	HP Community	INFN	G-RISICO

Table 13– Summary of participation in events 2008

6.2   RELATED PROJECTS

Cyclops consortium has maintained contact with a range of related projects and working groups dealing with issues relevant for Civil Protection and GMES communities, and therefore in common with the CYCLOPS project. The established contacts allowed the future research directions of the involved institutions to influence or be influenced, by providing numerous mutual dissemination channels. The following initiatives/projects/working groups were involved:

Project/Group	Set off	Goal	Collaboration	MoU
OGC-OGF initiative	Since 2007	Identify and produce standard grid enabled geo spatial tools for SOA: WCS, WPS, WMS and WFS	1)OGC20, Manchester, May 2007 2) OFG23 of Barcelona in June 2008	N.a.
GENESI – DR	January 2008	Standardized approach to implement OGC Web Services (OWS)	prototypal library for implementing OGC-WCS and OGC-WPS,	Yes
DORII	February 2008	implementation of the Sensor Observation Service, OGC standards compliant, and its relationship with the grid Instrument Element	Training July 2008, UMinho	Yes
Earth Sciences Cluster	May 2008	provide CP specific inputs and requirements toward Earth Sciences community and grid services definition	NA4 activity of the EGEE-III	N.a
EELA-2	February 2008	to build a bridge between consolidated e-Infrastructures in Europe and the emerging ones in Latin America	1) Gridification and Deployment of a Civil Protection Application; 2) EELA VO support	N.a.
Portuguese NGI	Since 2007	Develop standard and interoperable Web Processing Services for fast and reliable emergency CP activities;	Develop a Grid Platform to Integrate Geo-referenced Web Services for Real-Time Management	N.a.

Table 13 – Related projects

7   CONCLUSIONS

Dissemination and exploitation of the project results were important aspects in accomplishing CYCLOPS Project objectives. This report describes the major activities which have been realized during project lifetime such as organization of conferences and training sessions, participation in international events by giving talks, presenting papers and posters and making live demonstrations of the achieved project results.

Also emphasized was the establishing and maintaining of solid contacts with: other related projects from similar fields of interest, work groups and National and International Institutions.

To conclude the evaluation of D20 main objectives of reporting "*the extent to which actors beyond the research community have been involved to help spread awareness and to explore the wider societal implications of the proposed work*" we next present a fragment of text from the press, iSGTW 8 October 2008 about EGEE'08 Conference, which we think may be used to evaluate the "**rise in public awareness and participation**" achieved by CYCLOPS project:

What has 545 people from 48 countries, 285 presentations, 97 sessions, 12 demonstrations, and 50 partners? The EGEE conference in Istanbul!!

"There was an excitement here," said Bob Jones, EGEE project manager. "It all came together."

Highlights, said Jones, included a Best Application Presentation award given to the CYCLOPS team of Marco Verlato (INFN), Stefano Dal Pra (INFN) and Valerio Angelini (CNR-IMAA) for their "G-RISICO: A Wild Fire Risk Assessment application running on an advanced Grid infrastructure."
The team said that their approach could help civil protection authorities predict not only wildfire, but the risks of many types of natural disasters.