

SEVENTH FRAMEWORK PROGRAM



RESEARCH INFRASTRUCTURES

Grant Agreement Number 212891



Enabling Virtual Access

to

Latin-american Southern Observatories

<http://www.evalso.eu>

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¹ nature of the deliverable:

Dissemination: **R** = Report, **P** = Prototype, **D** = Demonstrator, **O** = Other

² Dissemination level

PU = Public

PP = Restricted to other programme participants (including the Commission Services).

RE = Restricted to a group specified by the consortium (including the Commission Services).

CO = Confidential, only for members of the consortium (including the Commission Services).

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LIST OF ABBREVIATIONS

EVALSO Enabling Virtual Access to Latin-american Southern Observatories

1 PURPOSE AND SCOPE

The present document reports on the overall dissemination activities done by the EVALSO consortium and on the impact of the project on the research community. This includes the papers published in the proceeding of the conferences where the project has been presented.

1.1 Applicable documents

The following applicable documents form part of the present document to the extent specified herein. In the event of conflict between applicable documents and the content of the present document, the content of the present document shall be taken as superseding.

- | | |
|-----|---|
| AD1 | NA3-3 EVALSO WEB Evaluation |
| AD2 | EVALSO, 212891, Grant agreement for: Combination of Collaborative projects & Coordination and support actions, Annex I - "Description of Work", update 15/02/2011 |

2 EXECUTIVE SUMMARY

The overall dissemination approach that was set as part of the EVALSO proposal (see [AD2] section “*B.3.2 Plan for the use and dissemination of foreground*”) has been implemented over the project development with only minimal changes and, mainly, adaptation to the actual schedule of the link availability.

Here below a short recap of the initial goals and the way they have been implemented, with references to more detailed explanations.

2.1 Use of already well-established outreach structures

Proposed: It is planned to use the already well-established outreach structure of ESO, including its widely distributed quarterly bulletin, “The Messenger”..

Implemented: the project featured several times on ESO as well as other project beneficiaries (REUNA, CLARA, etc) bulletins, web-sites, and other outreach means. Details are in section 4.

2.2 WEB site

Proposed Creation of an informative WEB site, in English, for the benefit of all scientific and general public. The site will link to and be linked by the sites of the participant entities. As soon as the link is available, live images from the sites in high quality can be made accessible.

Creation of a Spanish section targeted at the Chilean and, more in general, Latin American public with the aim to make the project effort more visible to the non-European involved community and to connect it to other initiatives improving and extending the relationship among the two areas.

Implemented: the EVALSO WEB

<http://www.evalso.eu>

became publicly accessible on **March 11th, 2008** and since then has been regularly updated with all news and dissemination material that has been produced by the project.

A separate report (see [AD1]) focuses on the web site implementation and usage.

After initial discussion, it was preferred to have a single site with a balanced set of articles, material, and events covering both languages.

2.3 Presence at Conferences

Proposed: The project will be advertised at at least three major conferences with worldwide attendance:

- The bi-annual conference of the International Society for Optical Engineering (SPIE) on Astronomical Telescopes and Instrumentation, 2008 and 2010 editions.
- The annual Astronomical Data Analysis Software and Systems (ADASS) conference, 2008, 2009 and 2010 editions
- The tri-annual General Assembly of the International Astronomical Union (IAU), 2009 edition

Besides, the enhanced operational capabilities will be presented by means of posters in astronomical conferences devoted to transient phenomena like supernovae or gamma-ray bursts. Such conferences are typically announced with an anticipation of less than one year, and it is therefore not possible at the moment to provide here with a detailed list.

Implemented: the project has been presented to main conferences as SPIE (2008 and 2010), ADASS (2010), ICALEPCS (2009), as well as on several events and conferences, both for astronomies and for the networking and communications.

Section 4 provides a comprehensive list of all events and reference to papers.

2.4 Special Events

Although not initially planned, two major events have been/are being organized, as response to EC indications that have emerged during the second project review (2009), namely:

Proposed: Plan a big launch event for the network operations inauguration and a Latin American continental event which shows the different collaborations between Europe and Latin America in networking which supports science. EC investment should be made clear at those events.

Implemented:

- The EVALSO Launch event took place in Santiago on November 4th, 2010. Section 5 is devoted to a detailed report on this unique event.
- The second major event is currently in preparation and will be held in October in Brazil. Updated information will be available on the EVALSO Web site.

3 EVALSO IDENTITY

3.1 Logo

The logo was established at the beginning of the project and used consistently on documentation and web site.



3.2 Fact Sheet

A A4 fact sheet has been prepared in both [English](#) (here below) and [Spanish](#). The first version (2008) was updated and improved after the completion of the Link Event (Oct2010)

Summary
The increasing cost of experimental facilities in many research fields is prompting a concentration of such facilities in a few selected places, sometimes driven also by environmental conditions.

The clear, steady skies without light pollution necessary to astronomical observations are generally not easily found in the Southern hemisphere the best observing facility for optical and infrared astronomy is widely acknowledged to be ESO.

At the same time the ever increasing data volumes as detectors get bigger and more complex, raises a number of problems for the facilities, the operators, and the users as well. The remoteness of the facilities makes the travelling from European home institutions difficult and expensive. Information Technologies can offer a solution to these problems, provided the necessary infrastructure and tools are put in place.

Objectives
The strategic objective of this project is to integrate the world-class facilities created in Chile by the European astronomical community into the expanding global instrumental grid. These represent an investment of many hundred million Euros that will be exploited in the next decades.

The present project proposes to create a physical infrastructure (and the tools to exploit it) to efficiently connect these facilities to Europe. The infrastructure is complementary to the international infrastructures created in the last years with EC support (RAECARA, ALICE, GEANT) and is another step in the creation in Latin America of an international communication G800. This will allow European research a competitive edge by giving faster access to collected data and more efficient use of facilities.

Project acronym:
EVALSO

Contract n°: RI-20091

Project type: G

Start date: 01/01/2008

Duration: 42 months

Netw budget: 4,302,000 €

Funding from the EC: 1,700,000 €

Total funded effort in person-months: 235

Web site:
www.evalso.eu

Contact persons:
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Action plan
The EVALSO project officially started on January 2008 and has 5.5 years duration, ending in June 2013. The EVALSO infrastructure is based on existing infrastructures, both commercial and academic networks, plus the new systems necessary to connect the sites to the net. It is expected to be completed within Q2 2010.

Networking activities
The network activities support project management, training, standardization, liaison activities, and dissemination, with special attention given to reaching the Chilean community. This helps foster a supportive relationship with Europe's scientific and cultural environment.

Service activities
Service activities include both creation of the physical infrastructure (where not previously existed) and procurement of services in order to upgrade the connectivity to the observing facilities in line with what was decided during the initial market survey. This also requires the set up of the operation procedures and, if applicable, the negotiation of the relevant contracts.

Joint Research activities
The general objective of this project is to make possible and validate new ways to interact with remote facilities by exploiting the new capabilities made available by high-bandwidth communications. The project foresees three Joint Research Activities:

Fast Data Access, aiming at drastically improving the time needed for making data available from the moment of the physical observation. As of now this time is of several days (if not weeks) and makes the optimization of observation time, based on feedback provided by the data quality assessment, very difficult to implement in a timely manner.

Virtual Presence, to produce tools that could be used to make possible the virtual presence of scientists, engineers, and experts at remote facilities and, even the possibility to perform remote observations. These tools will also be used, in the framework of RUB activities, to demonstrate the possibility of using this technique to train students.

New Observing Modes, investigating and concept proofing new observing modes now made possible by the availability of the fast links and the tools developed. Remote presence, together with quasi real-time data availability techniques, will be an invaluable tool to boost the potential of observing unexpected events ("fleets of opportunity").

User communities
Although the project will develop tools and demonstration in the very specific environment of astronomy, it is envisaged that the same technologies, tools and know-how could be easily applied in other fields.

International aspects
EVALSO makes use of the infrastructure of REUNA and RAECARA and assumes the transit of data through the European federal research network infrastructure (IsarNet, ALICE, GEANT) and the European NRENs. Strong relationships with Latin-American partners and academic communities are planned.

Project participants:

Univ (Coord)	IT
ESO	IO
RUB	DE
GARR	IT
UL	NL
NAF	IT
OMAL	UK
CLARA	UY
REUNA	CL

Keywords:
NREN, virtual presence, networking infrastructure for astronomy

Collaboration with other EC funded projects:
ALICE
AugerAccess
GEANT

All paths have at least a 10Gbps capacity

3.3 Brochure (flyer)

A two-fold brochure (in English) focusing on the EVALSO Communication Infrastructure was prepared for the Launching event and also distributed further to all beneficiaries and at Conferences.



3.4 Movie

In behalf of the project, the ESO outreach developed an informative movie on the EVALSO Communication Infrastructure illustrating the physical construction as well as the future usage and advantages of such a system.





[ESOcast 23: A telescope's wire to the world](#)










In this episode of the ESOcast, we travel to the inhospitable but dramatic landscape of the Atacama Desert. Beneath the ground there, a new high-speed data cable is helping connect Paranal, the world's most advanced astronomical observatory, with scientists and engineers based at ESO headquarters in Germany. Dr J presents this new project and explains its impact on scientific research at ESO.

3.5 Presence on beneficiaries outreach channels

EVALSO featured on the following bulletins or periodical publications:

EC	2009/04 GRID Briefing ()
ESO	<p>Messenger 136, June 2009 ()</p> <p>2010/05/24 Picture of the Week in the ESO Web Site ()</p> <p>Messenger No.142 – December 2010 ()</p>

RedCLARA	2008/05 RedClara bulletin n.16 ( ,  , ) 2010/12 RedClara bulletin n.25 ( ,  , )
REUNA	2008/06 REUNA bulletin ()

Links to the project web site are present in:

ESO	http://www.eso.org/public/shop/product/brochure_evalso/ () http://www.eso.org/public/images/potw1021a/ () http://www.eso.org/public/news/eso1043/ ( ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  , )
GARR	http://www.garr.it/a/progetti/europei/evalso ()
INAF	http://www.media.inaf.it/2010/11/04/un-cavo-nel-deserto/ ()
RedCLARA	http://www.redclara.net/index.php?option=com_content&view=article&id=69&Itemid=449&lang=en ( ,  , )
REUNA	http://www.reuna.cl/index.php/es/proyectos/proyectos-en-ejecucion/evalso ()
RUB	http://www.astro.ruhr-uni-bochum.de/astro/oca/evalso.html ()

4 COMPLETE LIST OF DISSEMINATION EVENTS

The EVALSO project featured or appeared on the following events/media. The complete description is available in the [EVALSO WEB Site/All Events](#).

- [2011/06/20-21 4. DFN-Forum, Bonn \(D\)](#)
- [2011/02/28-03/03 Telescopes from Afar, Hawaii \(US\)](#)
- [2010/12 ESO The Messenger No.142 – December 2010](#)
- [2010/12 Dec RedClara bulletin DeCLARA #25](#)
- [2010/11/30 EVALSO in the Lunck Talks series at ESO](#)
- [2010/11/16/17 Sixth AccessNova Forum, Tokyo \(Japan\)](#)
- [2010/11/15-19 INFONOR Chile, Antofagasta \(CL\)](#)
- [2010/11/7-11 ADASS XX, Boston \(US\)](#)
- [2010/11/04 EVALSO Communication Infrastructure Launching Event, Santiago \(CL\)](#)
- [2010/11/03 ICT Forum, Santiago \(CL\)](#)
- [2010/06/27-07/02 SPIE2010, SPIE Conference on Astronomical Instrumentation, San Diego \(US\)](#)
- [2010/05/24 Fiber construction snapshop features as Picture of the Week in the ESO Web Site](#)
- [2010/04/12-13 CLARATec 12, Santa Cruz de la Sierra \(Bolivia\)](#)
- [2010/03/23-24 ECRI 2010, Barcelona, Spain](#)
- 2009/11/28 EVALSO presented at the EELA Conference, Venezuela
- [2009/10/12 ICALEPCS 2009, Kobe, Japan](#)
- 2009/06/01 The need for faster links to the Paranal Observatory was pointed out in an article appeared on the ESO bulletin (The Messenger 136, June 2009, p.62)
- [2009/05/18 Workshop on Robotic Autonomous Telescopes](#)
- [2009/04/21 EVALSO was noted in a talk at the Joint European and National Astronomy Meeting \(JENAM\).](#)
- 2009/04/01 EVALSO mentioned in the [GridBriefing brochure](#) (p.4)

- [2008/07/11 Light Pollution Workshop, Antofagasta \(Chile\)](#)
- [2008/06/23-28 SPIE conference on Astronomical Instrumentation, Marseille \(France\)](#)
- [2008/05/22 Fifth AccesNova Forum, Pucon \(Chile\)](#)
- [2008/May RedClara bulletin/REUNA bulletin](#)
- [2008/04/21 "el Mercurio" \(Chilean newspaper\)](#)
- 2008/03/08 talk on EVALSO given in a meeting of [VISTA](#)

5 LAUNCHING EVENT

On November the 4th, 2010 in [Santiago de Chile, at the ESO Campus \(Vitacura\)](#) took place the the [Launching event](#) of the [EVALSO Communication Infrastructure](#)



(Picture courtesy of ESO)

In the words of the EVALSO Project Coordinator, [Fernando Liello](#):

"The event was attended by a number of ambassadors and diplomatic from the EU, a very large delegation from the EC, very high level officials from ESO, ALMA and a number of other organisations.

The event was opened by a short speech of the ESO Director General, [Tim de Zeeuw](#), and there were speeches from [Josè Palacios](#) (REUNA president), [Rolf Chini](#), [Massimo Tarenghi](#) (ESO representative in Chile), [Mario Campolargo](#) (EC) and Ambassador [Fernando Schmidt Ariztía](#) (sub-secretary of Foreign Affairs of Chile).

The relevance that has been given to the EVALSO first achievement was really very impressive.

The technical aspects of the EVALSO infrastructure have been very well illustrated by Giorgio Filippi (for the physical infrastructure) and Sandra Jaque (for the technological aspects). The illustration of the possible science implications, made by Rolf Chini was very well appreciated and understood by non-technical people, who have shown in off-line discussion the they have really got the point and appreciated the EVALSO objective.

I have felt proud of introducing the EVALSO framework, and I believe this was a very successful event, especially for the hard work of the people in ESO and REUNA that have organised everything with great care."

F.Liello, Santiago 2010/11/04

5.1 Dissemination material

The following additional material concerning the event is available

- The detailed [program and presentations](#) used
- The [recording of the event as streaming video](#)
- The [ESOCast Video "A Telescope wires to the world"](#)
- the invitation card for the [Launching event](#)
- the brochure of the [EVALSO Communication Infrastructure](#)

All presents received a copy of the above printed material as well as brochures on ESO and RENA. The information package was offered in a recyclable textile bag bearing the EVALSO logo.



5.2 Press Releases on the event from the EVALSO Beneficiaries:

- [AIRUB-OCA](#) ()
 - [CLARA](#) ()
 - [ESO](#) ()
 - [INAF](#) ()
 - [REUNA](#) ()
- (          )

5.3 The event in the Media:

- [El Mercurio de Antofagasta](#)
- [Informationsdienst Wissenschaft](#)
- [Innovations report](#)
- [FirstScience](#)
- [Stjornuskodun](#)
- [El Periodico De Mexico](#)
- [UNI-Online](#)
- [YouTube](#) (ESOcast)
- [noticia123](#)
- [elNortero](#)
- [SpaceDaily](#)
- [Wirtualna Polska](#)
- [El Mercurio de Calama](#) (announcement)
- [El Mercurio de Calama](#)
- [La Tercera](#)
- [Physorg](#)
- [Sciences et Avenir](#)
- [PressRelation](#) (Max-Planck-Institut für Astronomie)
- [Univision](#)

5.4 Picture Gallery



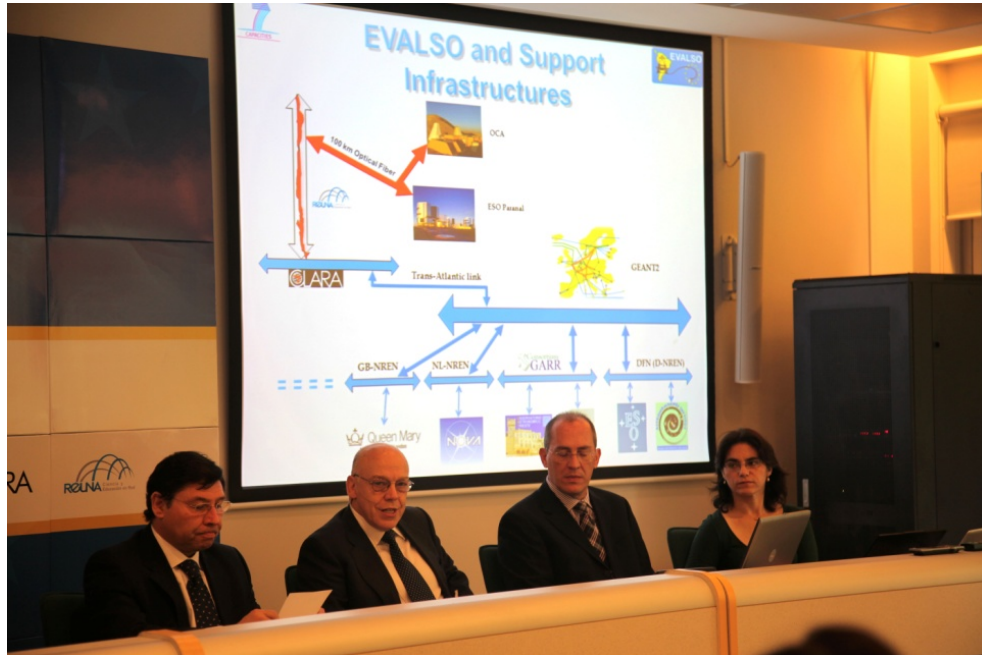
Opening speech from ESO Director General, [Tim de Zeeuw](#)



The EVALSO Project Coordinator, [Fernando Liello](#), speaking about the EVALSO project and its relation with other academic networks.



Sandra Jaque (REUNA) and Giorgio Filippi (ESO) illustrating the technological aspects of the new infrastructure . In the background live links to the Paranal Observatory over the existing lines (MPLS, microwaves) and on the EVALSO Optical infrastructure. Although it cannot be appreciated in the picture, the people presents at the event could see the striking improvement.



[José Palacios](#) (REUNA president) pointing out the importance of EVALSO for the Chilean academic community.



[Rolf Chini](#) (by Video Conference, first on the left) illustrating the possible science implications of EVALSO.



[Massimo Tarenghi](#) (ESO representative in Chile) explaining the new possibility opened by the EVALSO infrastructure. Among those the since long dream for remote operation (in the background early attempts in the late 80s on T1 lines!) will become an option.



[Mario Campolargo](#) (EC, by Video Conference) providing the strategic vision in which the EVALSO project is located



Ambassador [Fernando Schmidt Ariztia](#) (sub-secretary of Foreign Affairs of Chile) closing the event.

6 LATIN AMERICAN CONTINENTAL EVENT

A second major event is planned to take place in October 2011 in Brazil. The focus will be on the different collaborations between Europe and Latin America in networking which supports science and the key role of the EC investment.

Due to organizational constraints, the event takes place outside the time frame of the project and therefore cannot be reported in the present document, but it can be followed up on the EVALSO Web site at the following link:

<http://www.evalso.eu/evalso/20111017-21-latin-american-event/>

7 CONCLUSIONS

We think that the NA3 EVALSO Dissemination has overall delivered the expected goals (as defined in [AD2] section “*B.3.2 Plan for the use and dissemination of foreground*”) by means of the combined use of:

- project identity (logo, fact sheet, etc);
- modern outreach techniques, as web, movies, etc.;
- presence at well known conferences;
- targeted events (launching, LA event on Europe and Latin America collaboration).

8 APPENDIX A: LIST OF PAPERS

The following is a list of papers on EVALSO or related to EVALSO:

[SPIE conference on Astronomical Instrumentation \(Marseilles, 23-28 June 2008\):](#)

- (poster) “[EVALSO: Enabling Virtual Access to Latin-America Southern Observatories](#)”
- (poster) “A fast link with Paranal: new operational opportunities”

2009/10/12 ICALEPCS 2009

- (poster) “[The EVALSO Project: Software-Hardware architecture and remote test results](#)”

2010/03/23-24 ECRI 2010 Barcelona

- (Poster) “[EVALSO](#)” project .

[SPIE conference on Astronomical Instrumentation, San Diego, 27June-02July 2010:](#)

- Paper 7740-53 (oral presentation) “[EVALSO: a high-bandwidth communication infrastructure to efficiently connect the ESO Paranal and the Cerro Armazones Observatories to Europe.](#)”
- Paper 7737-81 (poster), [From Chile to Europe in minutes: handling the data stream from ESO’s Paranal Observatory](#)

[Astronomical Data Analysis Software and Systems XX \(ADASS\),](#)

- (poster) “[Closing the observing loop across continents: data transfer between Chile and Europe](#)”.

INFONOR Chile 2010 Antofagasta

- (paper) ["EVALSO: Infraestructura de vanguardia que conecta a los observatorios de ESO Paranal y Cerro Armazones a Europa generando grandes sinergias con la comunidad académica chilena"](#)

2011/02/28-03/03 Telescopes from Afar, Hawaii (US)

- (paper) [*Rapid response to transient events*](#)

[4. DFN-Forum: Kommunikationstechnologien](#) (June 2011)

- (poster) "EVALSO, an enabling communication infrastructure for Astronomy"