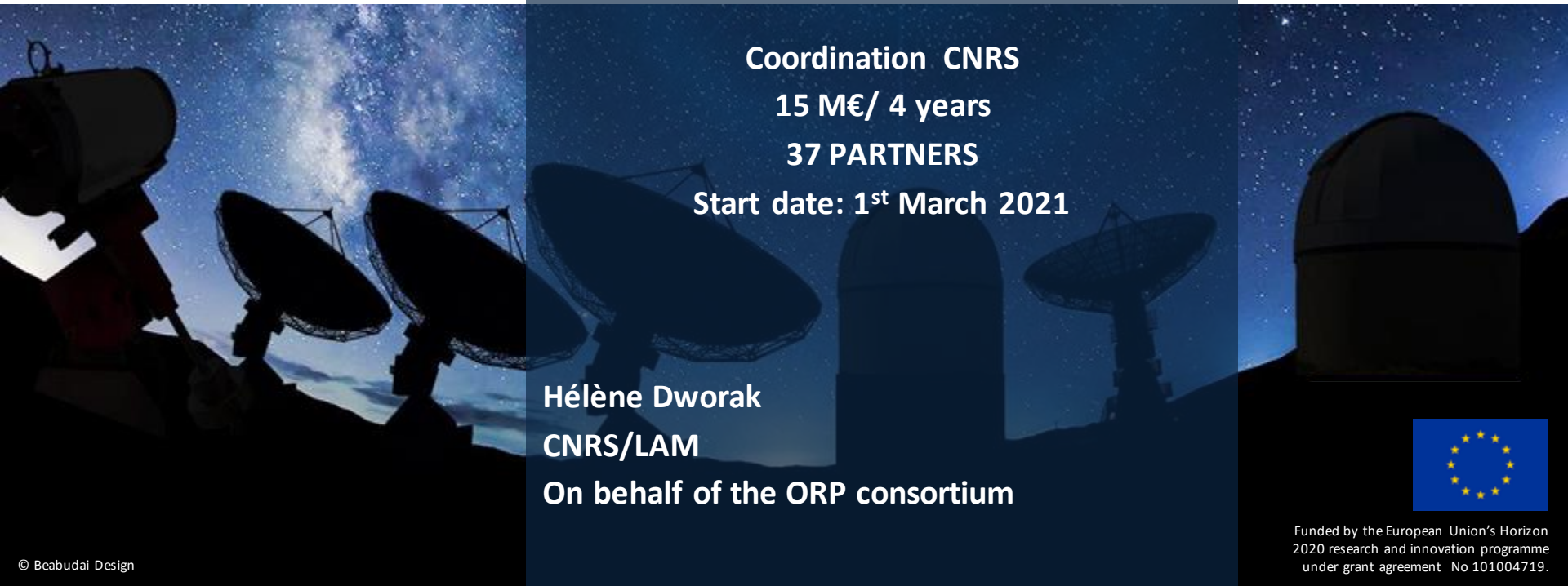
OPTICON-RADIONET PILOT

Europlanet 2024 RI Council Meeting



Coordination CNRS

15 M€/ 4 years

37 PARTNERS

Start date: 1st March 2021

Hélène Dworak

CNRS/LAM

On behalf of the ORP consortium

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What is ORP ?

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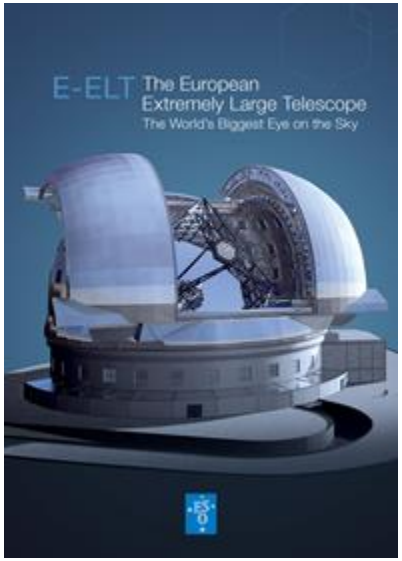
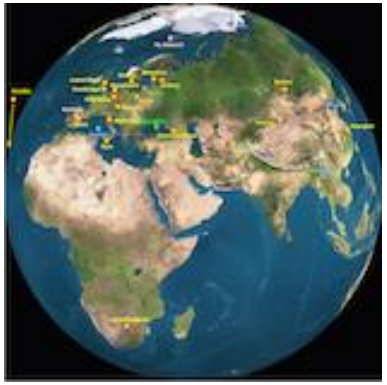
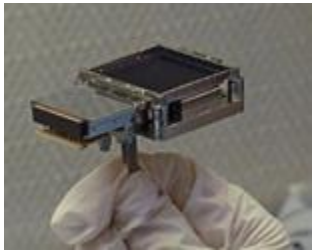
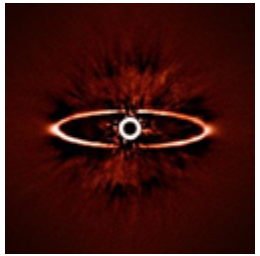
ORP is 20 years of success leading to the fusion of RadioNet and OPTICON









OPTICON RadioNet Pilot

What was OPTICON?

Funding

20 yrs of EU funding

- FP5 (2000-2004) Start-up networking €1M
- FP6 (2004-2008) 47 partners €19M (5 years)
- FP7-1 (2009-2012) 30 partners €10M (4 years)
- FP7-2 (2013-2016) 26 partners €8.5M (4 years)
- H2020 (2017-2020) 32 partners €10M (4 years)

Partners

- funding agencies, hardware R&D groups, observatories, industrial partners
- 55 different partners in total

Activities

- observing access
- technology R&D
- networking / community development

Coordinator: Prof Gerry Gilmore (U. of Cambridge)
Project Manager: Dr Gudrun Pebody (U. of Cambridge)
Project Scientist: Dr John Davies (ATC Edinburgh)

Legacy

Develop new stable capabilities with multi-national teams:

- Software: CDS Strasbourg, Virtual Observatory
- Ultraviolet astronomy
- Solar Astronomy
- European Interferometry Initiative
- Adaptive Optics Community
- Time Domain Astronomy

Build community support for Extremely Large Telescope

- Created the first EC-supported ELT design study
- Merged competing projects, Presented ELT for ESFRI approval

Technology development

- Fast cameras – OCAM spinout First Light Imaging Adaptive optics – SPHERE facility at ESO-VLT
- Photonics – novel materials, industry spinouts

Training Schools, Telescope Access

OPTICON RadioNet Pilot

What was RadioNet?

Funding

20 yrs of EU funding

- FP5 (2000-2004) 11 partners €0.8M
- FP6 (2004-2008) 24 partners €12.5M (5 years)
- FP7-1 (2009-2012) 26 partners €10M (4 years)
- FP7-2 (2013-2016) 27 partners €9.5M (4 years)
- H2020 (2017-2020) 28 partners €10M (4 years)

Partners

- funding agencies, hardware R&D groups@universities, observatories, industrial partners
- upto 28

Activities

- telescope access
- technology R&D
- networking / community development

Coordinator: Prof. P. Diamond (UNIMAN), Prof. M. A. Garrett (ASTRON), Prof. Anton Zensus (MPG)

Project Manager: A. Wilkinson (UNIMAN), A. van Es (ASTRON), Izabela Rottmann (MPG)

Legacy

ACCESS to the world-class European radio astronomy facilities

- Open skies policy and transparent access process
- Professional user support @ all stages (proposal to data reduction)
- Provided 40.367 free access hours (=5.6 yrs of observations)
- Attracted new users (44%), 33% female PI

NETWORK of partners and community

- Promote science, train next generation, provide forums (180 scientific and 170 training events with 5000 trainees, 530 refereed publications, important voice in spectrum mgt forums WRC)
- Build up the necessary scientific, technical and organizational consensus ==> ALMA and SKA could be set up
- RadioNet LoI

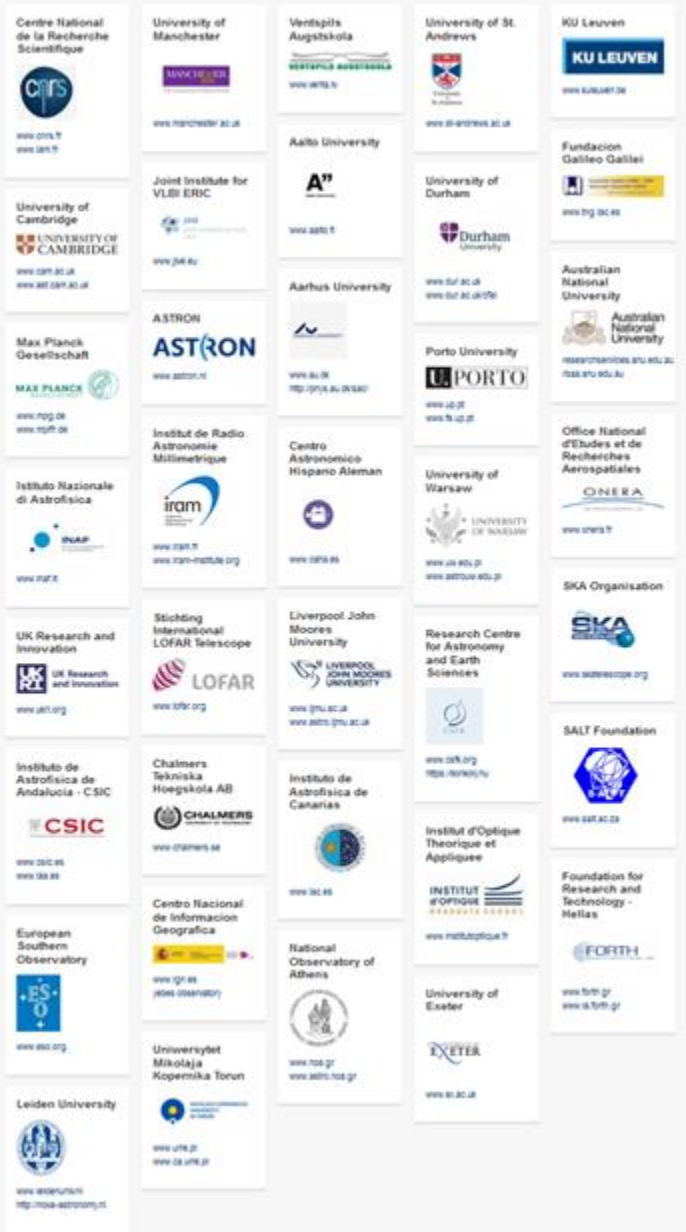
DEVELOPMENTS keeping and enhancing European expertise

- 14 JRAs with 300 deliverables – for cm (EVN, LOFAR, SKA) and mm/submm (IRAM NOEMA and PV, APEX, ALMA, EHT)
- Hardware prototypes - improvement for not only HEMT, SIS and HEB, but also LNA, LO distribution, OMT, optics: larger bandwidth, lower noise, miniaturisation
- Software and algorithms (ParselTongue, Python, CASACore)

OPTICON RadioNet Pilot

ORP is 37 Partners

- **Research Agencies and Research Centers**
  - CNRS, MPG, INAF, UKRI, CSIC, NOVA, NWO-I, CNIG, ONERA, FORTH
- **European Research Infrastructure Consortia (ERICs)**
  - JIV-ERIC, LOFAR
- **International organizations**
  - ESO, IRAM, SKAO
- **Universities, Schools**
  - Cambridge, Chalmers, Manchester, Torun, Ventspils, Aalto, Aarhus, Liverpool, St Andrews, Durham, Porto, Warsaw, Institut d'Optique, Exeter, Liège, Australian National University
- **Independent Observatories**
  - Calar Alto, Instituto de Astrofisica de Canarias, Athens, Konkoly, Fundación Galileo Galilei, South African Large Telescope



OPTICON RadioNet Pilot

ORP is > 20 Telescopes

Pillars of the Pilot

#1 Transnational and Virtual Access

- Radio: 9 TA ranging from sub-mm to metre wavelengths and including single dishes as well as interferometer networks.
- Optical: 13 TA from 0.4m to 10m diameter, with state-of-the art capabilities in wide-field imaging, imaging and multi-object spectroscopy, polarimetry, and high-resolution spectroscopy tailored for exoplanet detection and characterization.

=> Access to **observing time** is provided through a competitive, scientific-merit-based process.

- Instrumental TA support and TA to expertise centres (VLTI & ARC)
- Virtual access to ASTRON long term data archives (LOFAR & WSRT) and multi-wavelength time-domain astronomy (small- and medium-sized optical and infrared telescope)

=> All the calls and services are published on the ORP website.

ALMA EUROPEAN ARC
ALMA Regional Centre

#2 Harmonized services and tools

- Harmonize procedures to allow scientists to access ORP facilities.
- Support and deploy a common framework for data access and processing across multiple facilities.
  E.g. multi-wavelength time domain astronomy, interferometry

#3 Training for users

- Train scientists across radio and optical domains, making use of new harmonised access and analysis procedures;

#4 Support Facilities

- Improve the services of key infrastructures with targeted technical developments (continuation of previous Joint Research Activities)

#5 Policy development

- Preserve access to the sky for astronomical observations
- Bring together the key stakeholders from different communities
- Share information on impact and conduct advocacy activities

OPTICON RadioNet Pilot

ORP Goal :

Build a Pilot for Transnational Access provision

⇒ Review and understand the basis of access provision for all current and potential future facilities and infrastructures (including large-scale ESFRI facilities),

⇒ Review the mechanisms available to enable transnational access,

⇒ Review scope to enhance and sustain open access

⇒ Involve all agencies, the whole ORP community and the wider astronomy community, links to all EC-supported astronomy INFRA projects

⇒ Analyze funding models

⇒ Adopt a strategic vision of relation between astronomy and the EC

⇒ Piloting the Pilot and develop a management model for our future

OPTICON RadioNet Pilot

Challenges and opportunities

- Capitalize on 20-yrs of OPTICON & RadioNet successes
- Take things to the next level: propose a model of long term sustainability (possibly including EU funding) for access provision and access services through community integration
- This is a Pilot programme: we are free to propose a model, and test it
- Integrate gender equality, diversity and carbon footprint from the beginning
- Develop indicators and metrics to monitor progress
- Enable better science in Europe and beyond

THANK YOU !

Visit our website
www.orp-h2020.eu