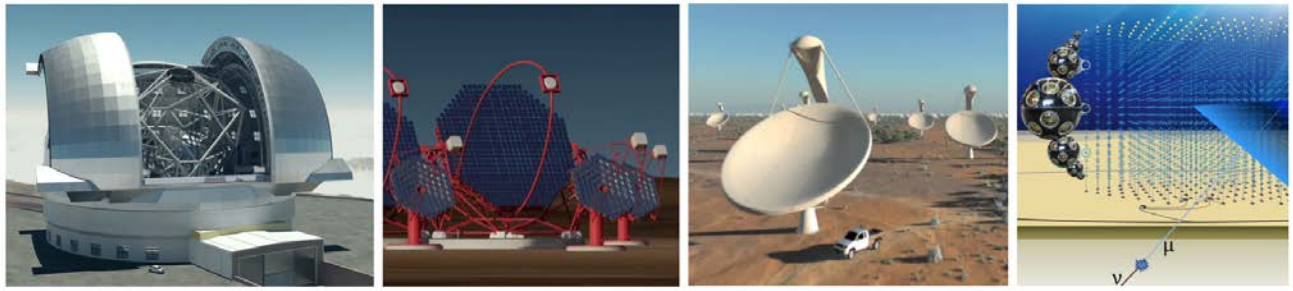
ASTERICS Periodic Review 1

Introduction



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The Challenge

To establish a single collaborative cluster of next generation ESFRI telescope facilities and other relevant research infrastructure initiatives in the area of astronomy, astrophysics and astroparticle physics.

"Addressing cross-cutting synergies and common challenges shared by astronomy ESFRI facilities"

ESFRI telescopes and others

- ESFRI projects in proposal:
  - CTA, E-ELT, KM3NeT, SKA
- Broad range of ESFRI and other facilities:
  - E-EVN, ET/EGO, Euclid, LOFAR, …

ASTERICS facts & figures

- Astronomy ESFRI & Research Infrastructure Cluster
- Horizon 2020 Work Programme INFRADEV-4-2014/2015 Call – "Implementation and operation of cross-cutting services and solutions for clusters of ESFRI and other relevant research infrastructure initiatives"
- Funded at 15 M€ for 4 years
- 22 partners in 6 countries, representing a major collaboration in Astronomy/Astrophysics/Astroparticle Physics
  ASTRON, CNRS, INAF, UCAM, JIVE, INTA, UEDIN, UHEI, OU, FAU, VU, CEA, UVA, UGR, FOM, IEEC, IFAE, UCM, INFN, STFC, DESY, SURFnet

Mission Impossible?

CTA, E-ELT, KM3NeT and SKA all established projects

- Have their own aims, planning and issues
- Have to solve their own problems within their scope
- Are not always in a position to invest in collaboration

ASTERICS approach: add value on critical areas

- Stimulate and facilitate community science initiatives
- R&D in tools and methods for handling the data deluge
- Training developers and users in data science
- R&D in commensal observing, time synchronizing, …

Our strengths

Focus on Open Innovation

- Essential for getting results in the other projects

Focus on Open Science & Training

- Essential for preparing the future user-base of the various facilities
- Continued improvement of Open Science methods and understanding

Focus on Open Collaboration

- Scientists and engineers from different projects collaborate and engage in ASTERICS
- Open to receive from other European projects

Our weaknesses (so far...)

Limited formal top-level interaction with ESFRI projects

- Needed to secure sustained incorporation of ASTERICS achievements

Non-trivial industry engagement model

- Contacts are there, but efficiency can be improved

Non-trivial alignment with other (EC funded) projects

- Interactions with most of these are now well-established (e.g. RadioNet, RDA, EOSC), but need to continued attention

Where are we now?

Activities in all WPs well on track

- After the usual slow ramp-up because of hiring
- See further presentations in this review

Visibility and relevance of ASTERICS established

- ASTERICS has linking-pins to AstroNet, APPEC, RadioNet, AENEAS, RISCAPE, EOSC, …

Publications and outreach well established

- See further presentations in this review
- Some selected highlights – more to come!

WP2 - DECS

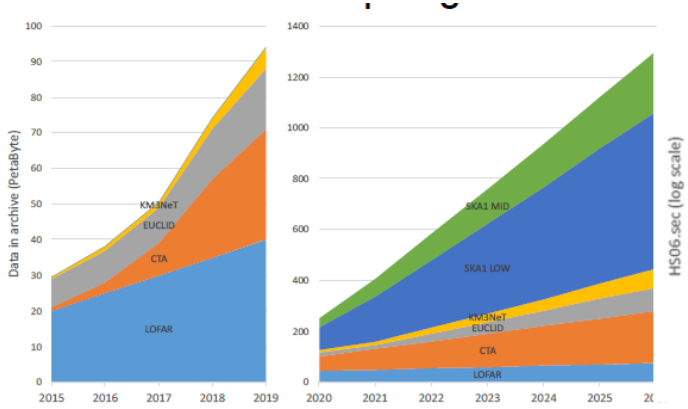
Citizen Science Workshop 1

- St Catherine's College Oxford, July 2016
- Representation from CTA, SKA, E-ELT, and other astronomy facilities

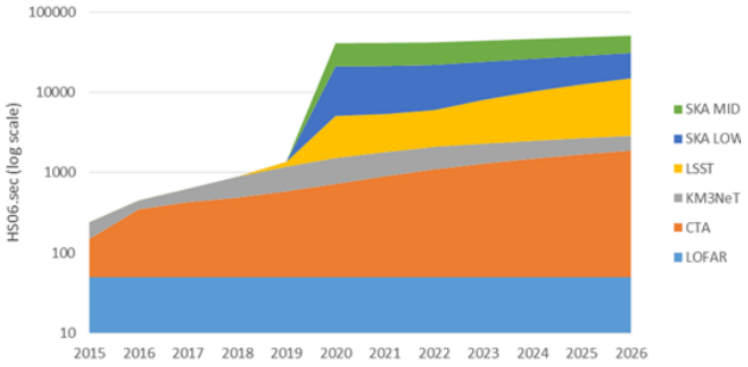
WP3 - OBELICS

(Independent!) Analysis of resource requirements

- And means to mitigate the data deluge, e.g. loss-less compression algorithms



Evolution of storage needs for the ESFRI Projects



Evolution of computing needs for the ESFRI Projects

WP4 - DADI

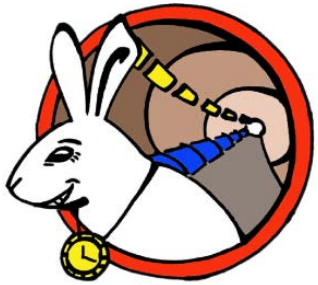
Active engagement with ESFRI projects

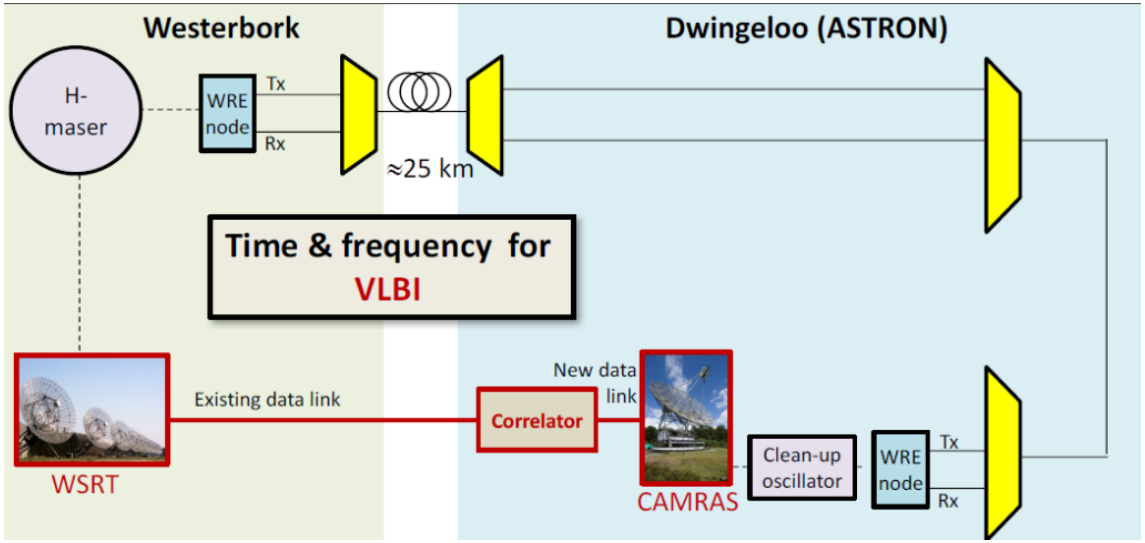
- E.g. collaboration between CDS and EGO on Aladin: customization for the GWSky gravitational wave follow-up tool

WP5 - Cleopatra

Real-world demonstrations on existing facilities

- WR timing in design of SKA-Mid





Future steps

- Activities in WPs continue according to plan
- Exploitation plan
  - Sustain: Tour of ESFRI project directors
  - Extend: Make active use of policy forum
- Collaboration plan
  - Sustain: ASTERICS in EAB of RadioNet etc
  - Extend: **targeted** new strategic collaborations


Idea
Technology
INNOVATION
Invention
Research
Creativity
Improvement
Concept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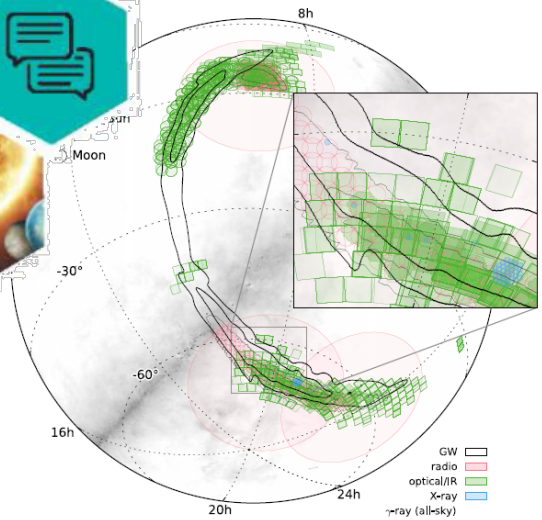
3,983
1,313,913
124,359
56,521


8h
Moon
-30°
-60°
16h
20h
24h
GW
radio
optical/IR
X-ray
γ-ray (all-sky)