ASTRON

Netherlands Institute for Radio Astronomy

NWO

SRC activities in The Netherlands

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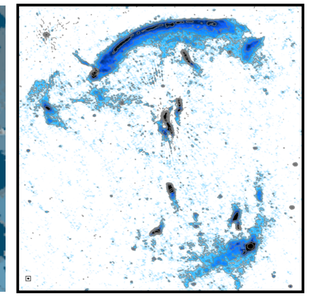
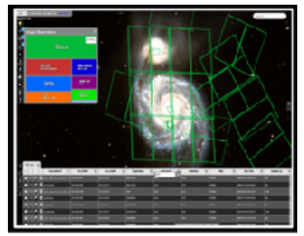
AENEAS Meeting Utrecht 12 November 2019

SRC activities in the Netherlands

- Involved in relevant EU H2020 Projects
  - AENEAS - Design of SKA Regional Centres - coordinating European SRC developments
  - ESCAPE - Connecting ESFRI facilities with European Open Science Cloud (EOSC)
  - EOSC-Hub - Demonstrating SRC capabilities using LOFAR
- Improving delivery of Scientific Data
  - LOFAR - Science Delivery Framework
  - Westerbork/Apertif - Long Term Archive
  - LOFAR 2.0 - Survey Science Delivery
- Dedicated SKA Regional Centre Preparation
  - Funding proposal submitted for 2021-2025
  - Collaborating with National e-Infrastructure Partners
  - Developing public-private initiatives to maximise societal and economic benefits of ICT developments and data driven science.
- <u>Development</u> and <u>prototyping</u> effort in 2020 ~10-12 FTE, in addition to LOFAR and WSRT/Apertif operational resources.





SRC Landscape in the Netherlands

- ASTRON - operates LOFAR and WSRT/Apertif
  - Processing in Groningen at CIT
  - Distributed archive at SURFsara in Amsterdam, Jülich, Poznan
- SURF - SURFsara, SURFnet - National eScience Infrastructure
- Nikhef - High Energy Physics (CERN, WLCG), Gravitational Waves (ET), KM3NeT
- Universities of Amsterdam, Groningen, Leiden, Nijmegen
  - CIT in Groningen hosts LOFAR CEP

- Funding through
  - NWO, Ministry, EC, Regional Funds

ASTRON plans for Science Data Centre

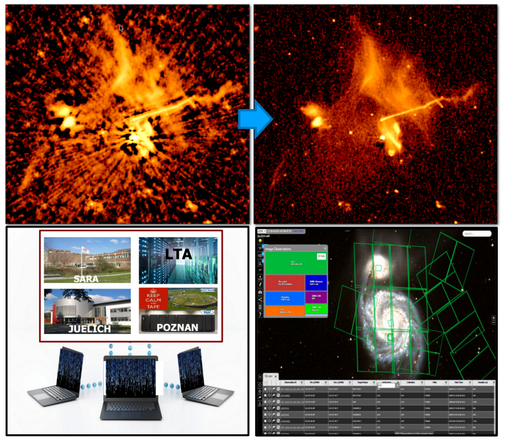
- Support for both SKA and (parts of) LOFAR
- Hosts/runs NL SRC node
  - NL SRC “part of” European SRC/Global SRC “Alliance”
- Technology development for SKA, LOFAR
  - with international partners and industry
  - funding in part from SKA ODP
- Shares infrastructure with other disciplines
  - part of European Open Science Cloud
- Provides user support for SKA, LOFAR
- Platform for multi-wavelength and multi-messenger, data science

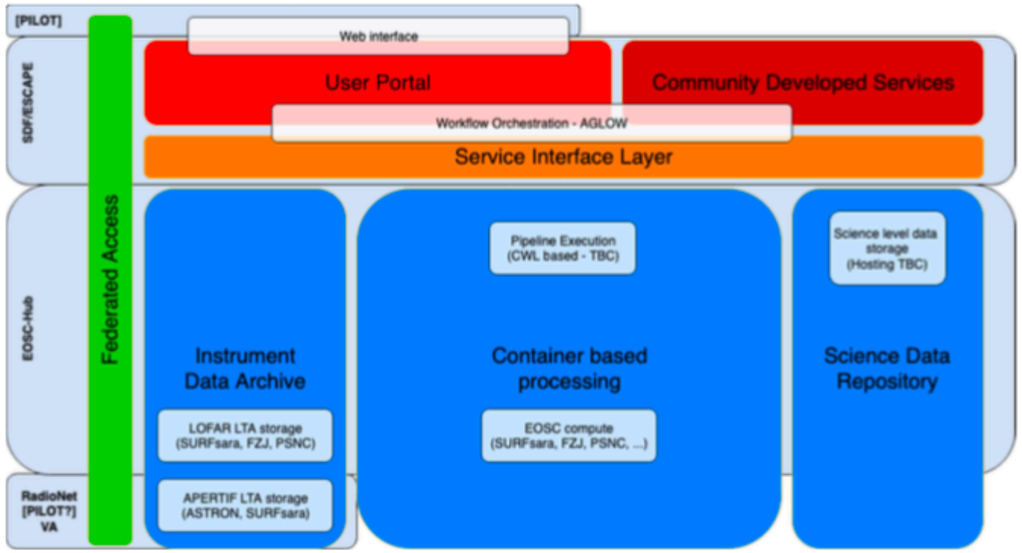
SRC Related Activities at ASTRON

- ASTRON operates LOFAR/ILT and Westerbork/Apertif
- Ongoing projects:
  - ASTRON Data Portal
  - Science Delivery Framework
  - AENEAS
  - ESCAPE
  - EOSC Hub
- Recent EC H2020 Projects
  - ASTERICS
  - EOSCpilot

SCIENCE DELIVERY FRAMEWORK

- **Goal: maximize scientific return of observing facilities**
- Why?
  - Data products of RO pipeline are *FAR* from science → need more advanced reduction pipelines in production.
  - now large amounts of data moved between computing facilities → need to exploit data where it resides.
  - Archive portal does not optimally expose data → Need to improve data access, discovery, and analysis.

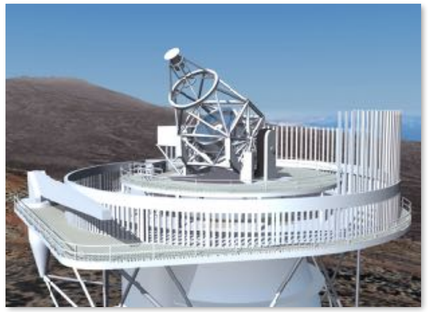


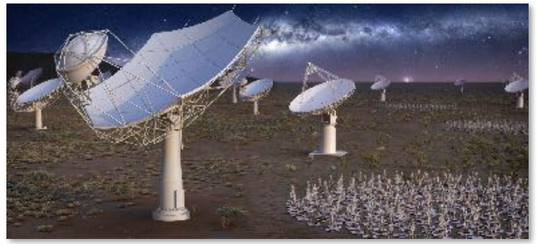


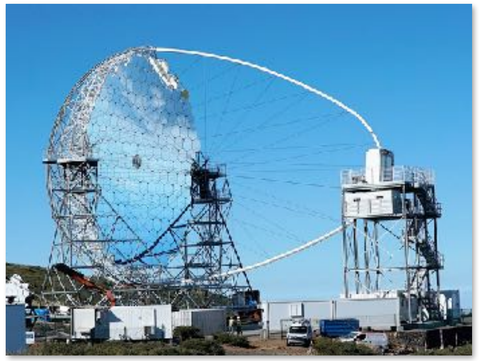
ESCAPE

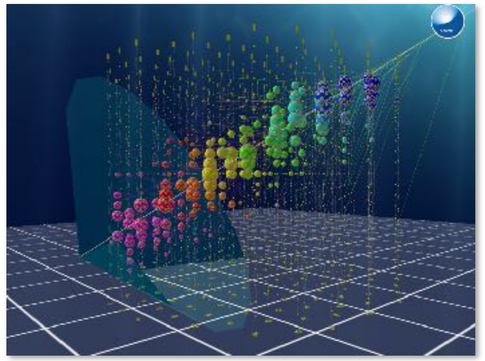
European Science Cluster of Astronomy & Particle physics
ESFRI research infrastructures

ESCAPE aims to address the Open Science challenges shared by ESFRI facilities as well as other pan-European research infrastructures in astronomy and particle physics





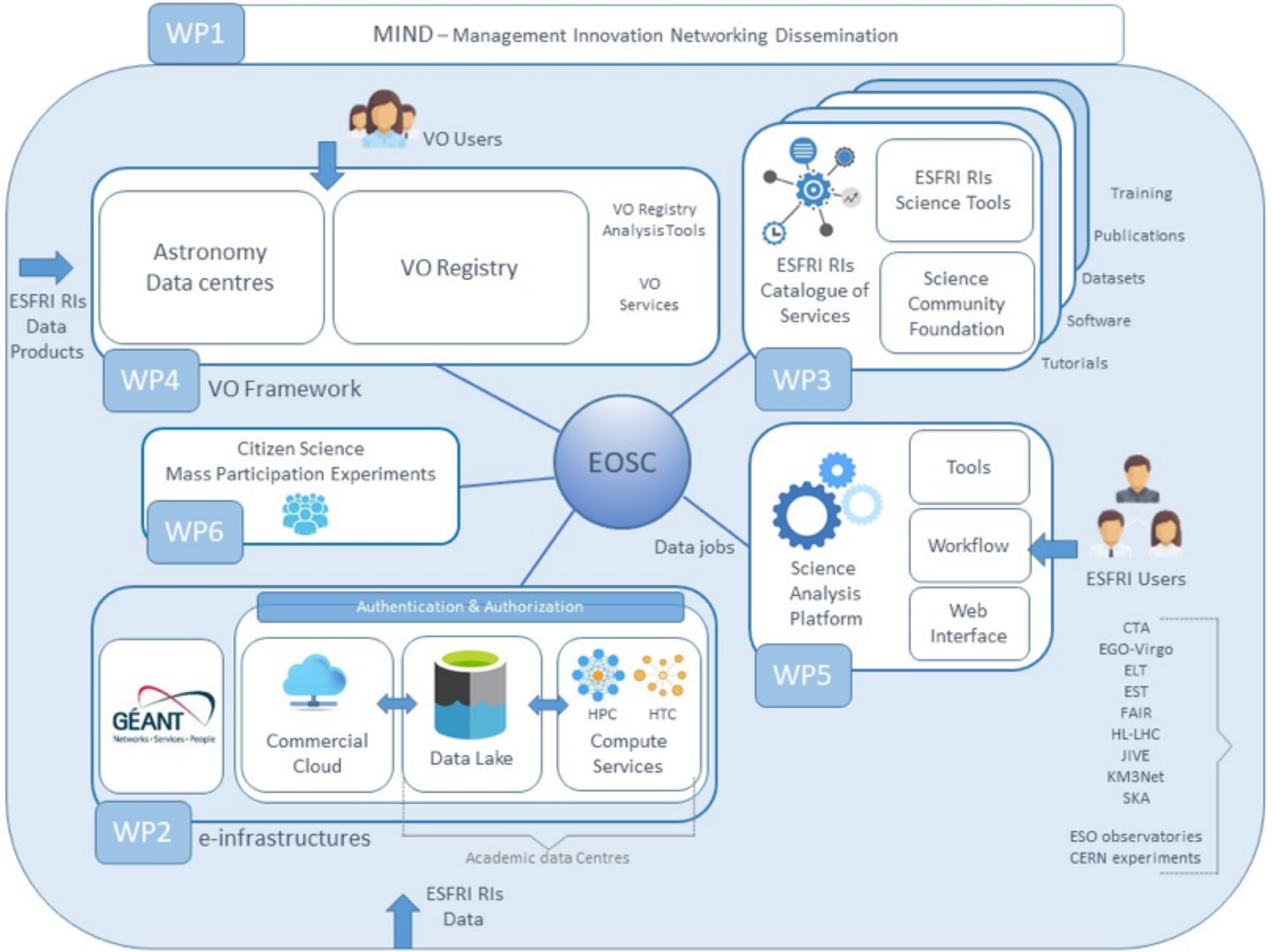




- EC H2020 (16 M€, 2019-2023)
- 7 ESFRI projects: SKA, CTA, KM3Net, EST, ELT, HL-LHC, FAIR
- Current and Future IGOs: SKA, CERN, ESO
- 2 EU RI: EGO and JIVE-ERIC
- Led by CNRS (FR), 31 different partners
- ASTRON leading WP5 Science Analysis Platform
- Work kicked off in February 2019

EOSC-hub

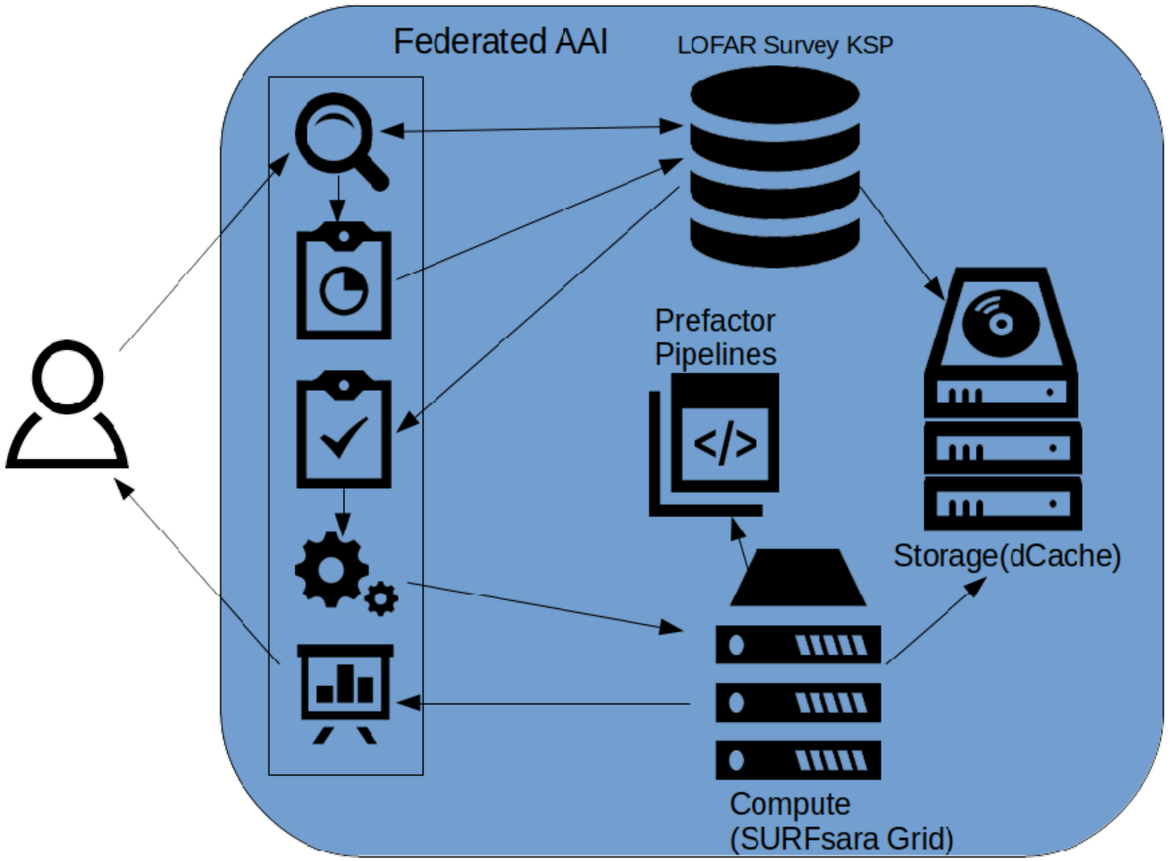
EOSCpilot
The European Open Science Cloud for Research Pilot Project



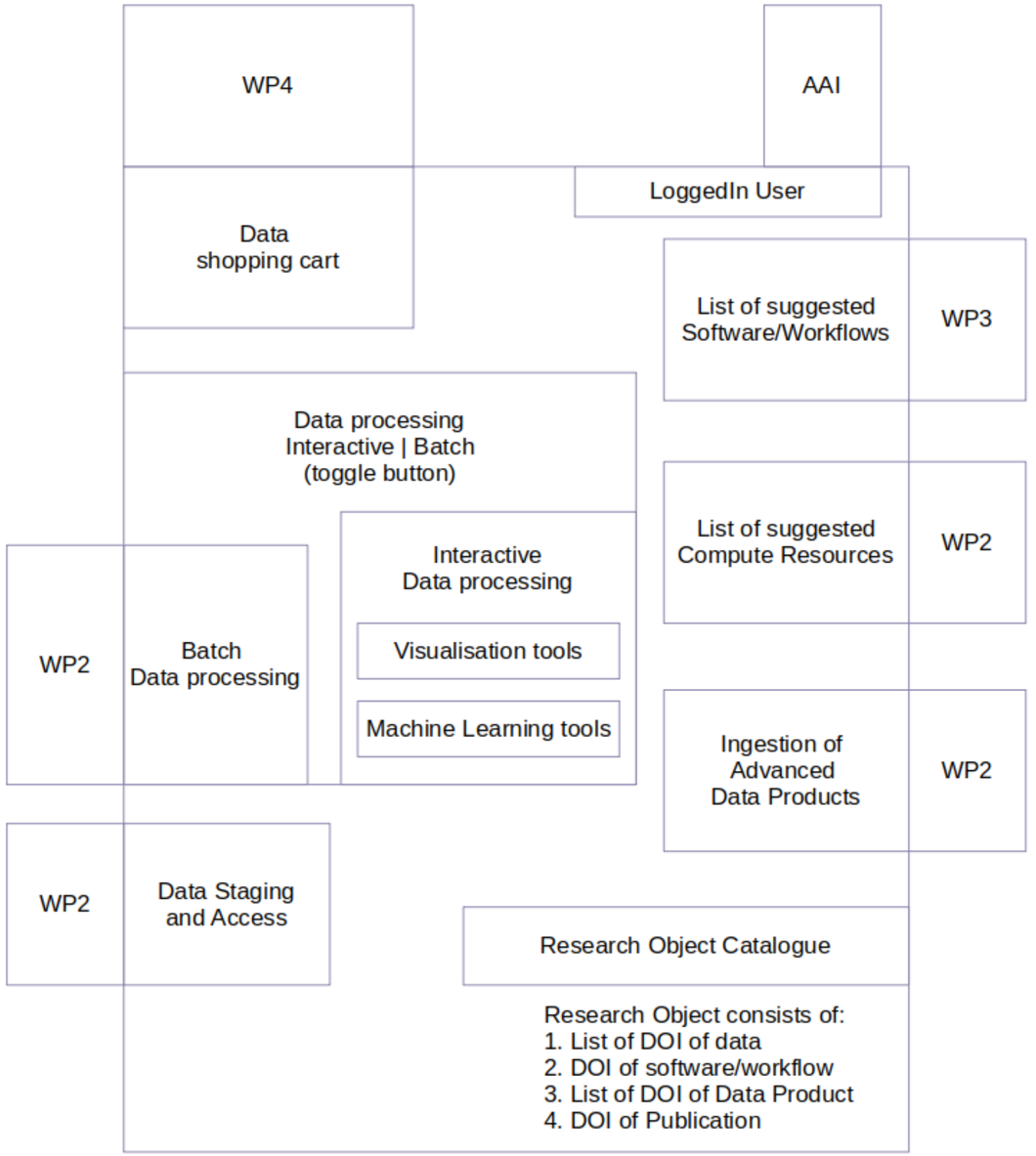
- WP2: Data Infrastructure for Open Science
  (federating, data lake, networking, AAI)
- WP3: Open-source scientific software and service repositories
- WP4: Connecting ESFRI Projects to EOSC through VO framework
  (integration of astronomy data, FAIR principles, adding value to trusted content in archives)
- WP5: ESFRI Science Analysis Platform

Service components of ESFRI Science Analysis Platform

WP2: Data Lake infrastructure
WP3: Software repository
WP4: Virtual Observatory



ESAP MVP



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