THE VIRTUAL OBSERVATORY (VO)

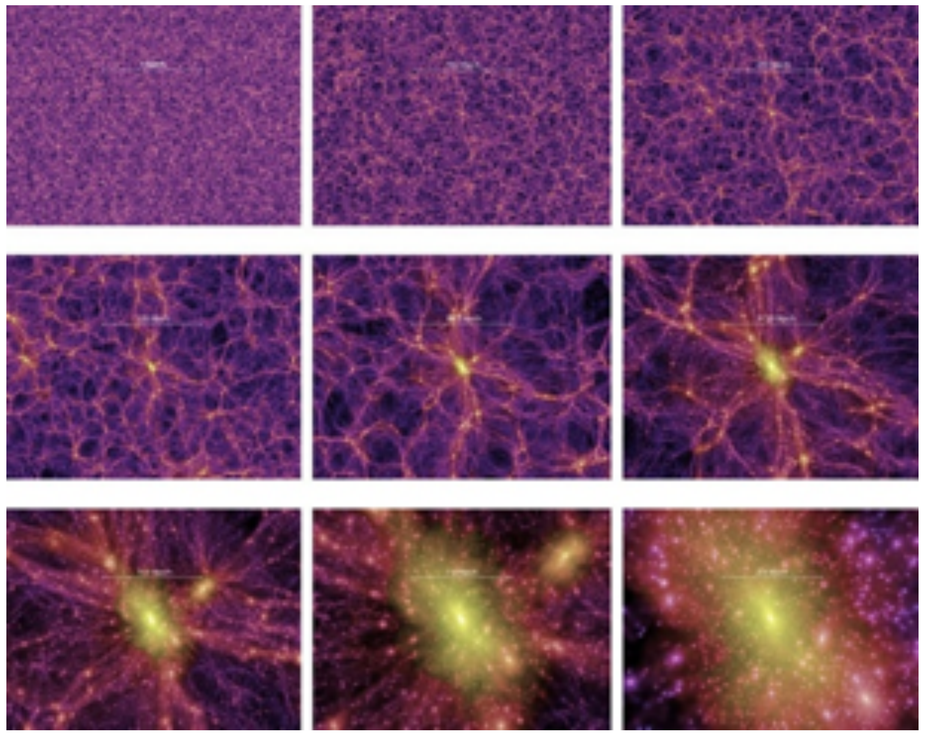
ALBA ALLER EGEA
CENTRO DE ASTROBIOLOGÍA (CAB, CSIC-INTA)

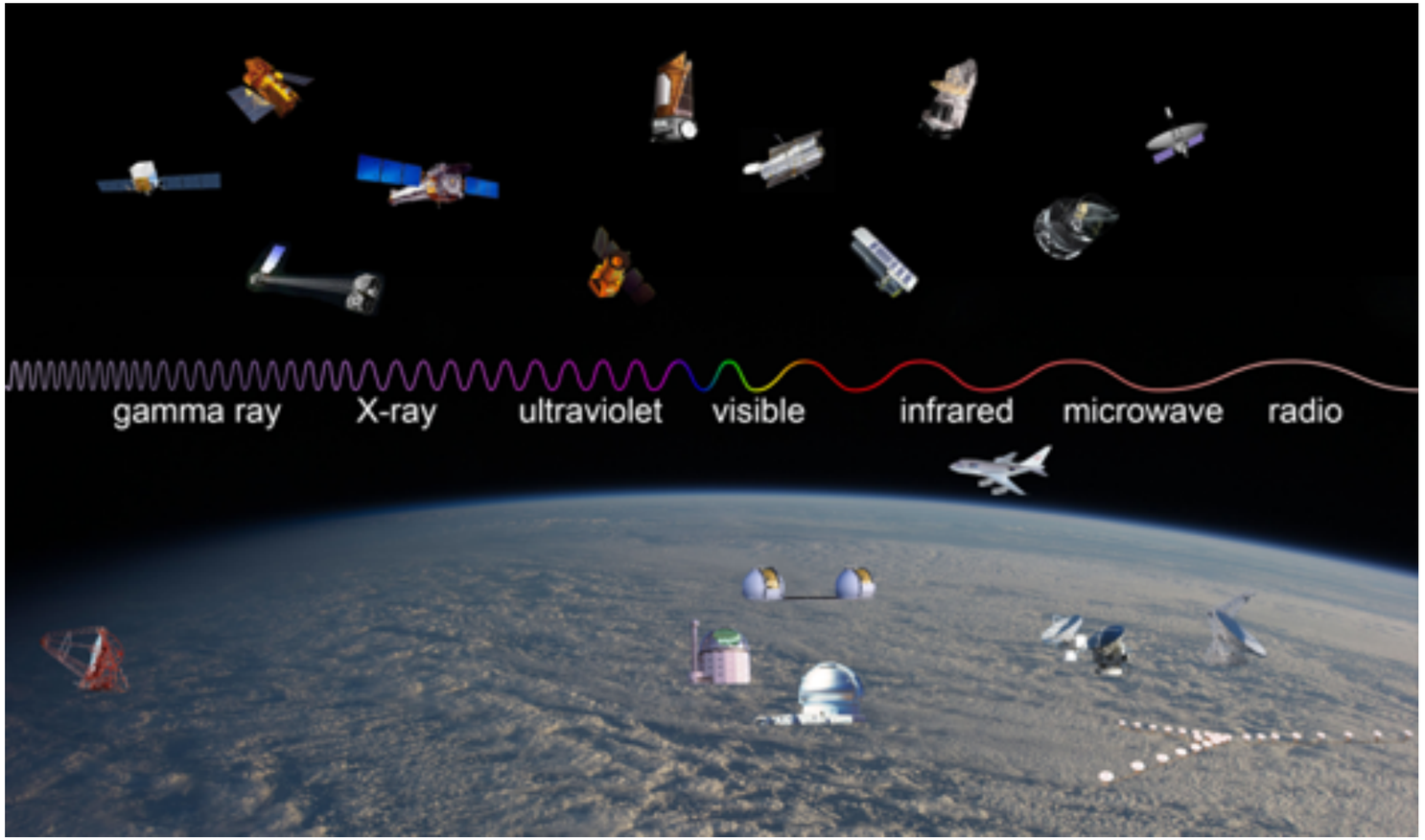
SVO Spanish Virtual Observatory

CENTRO DE ASTROBIOLOGÍA · CAB
ASOCIADO AL NASA ASTROBIOLOGY PROGRAM
CSIC INTA

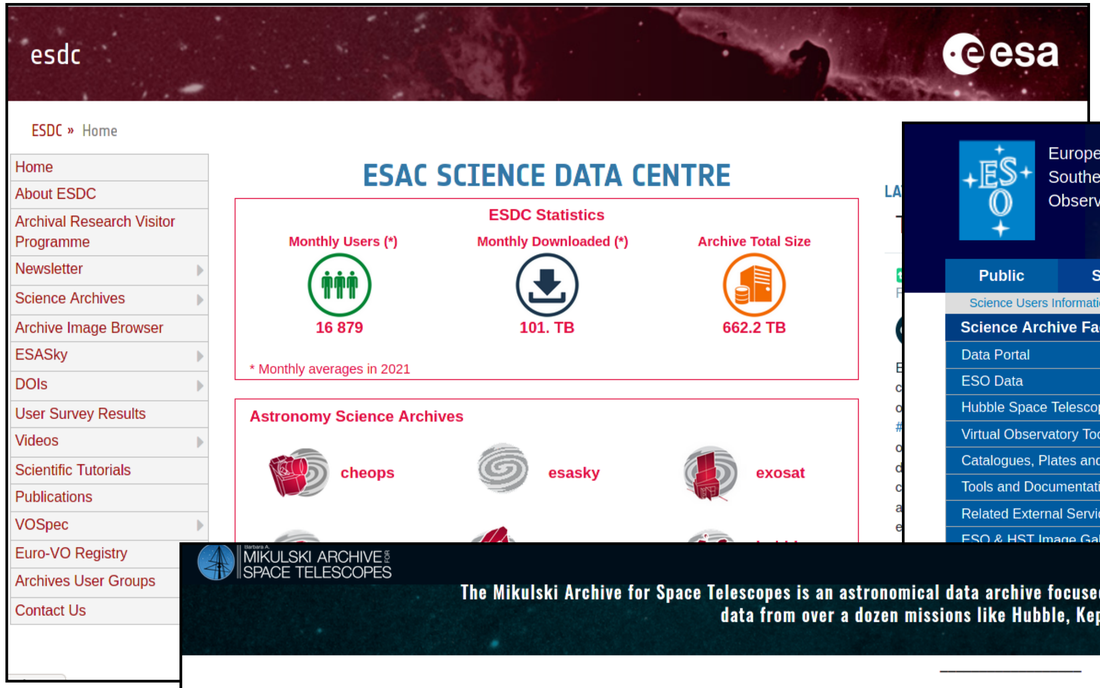
ESCAPE
European Science Cluster of Astronomy & Particle physics ESFRI research infrastructures

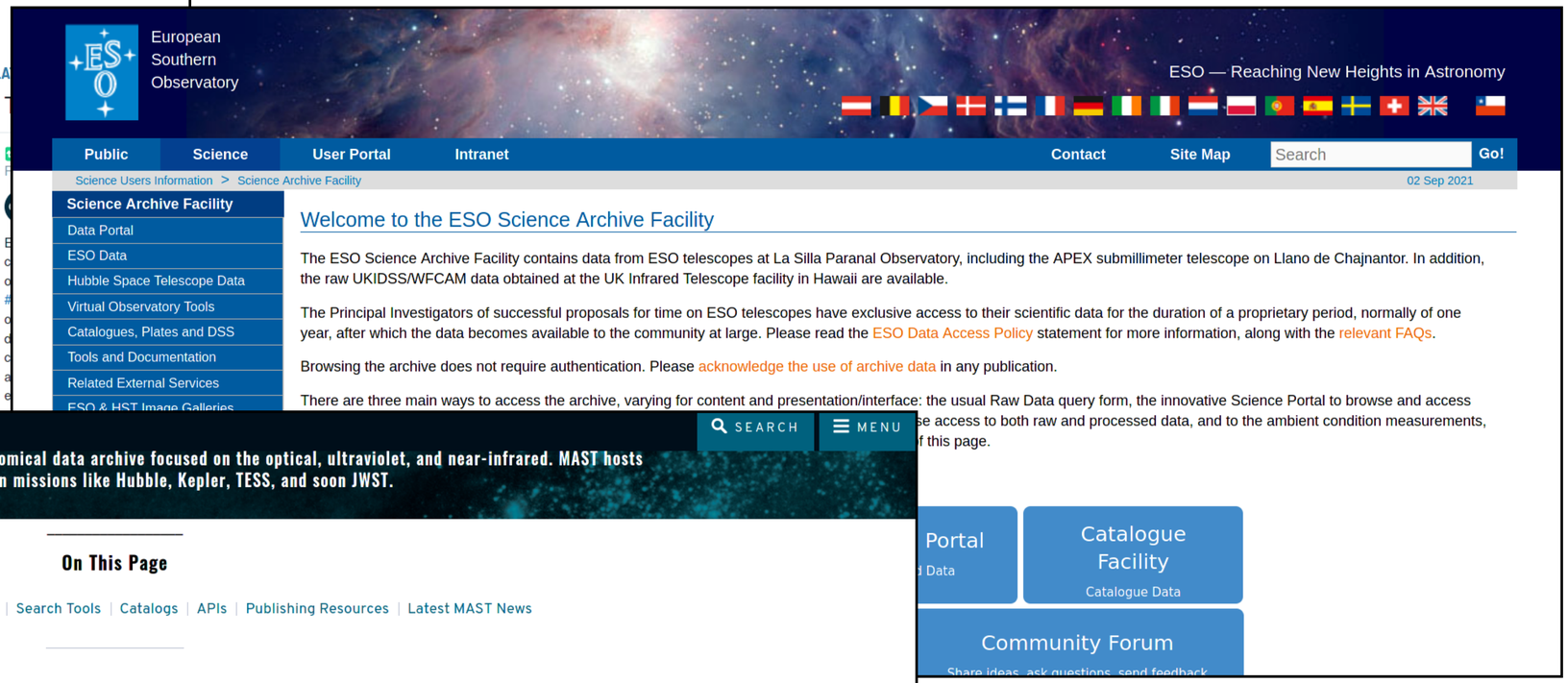
DATA, DATA, AND MORE DATA!

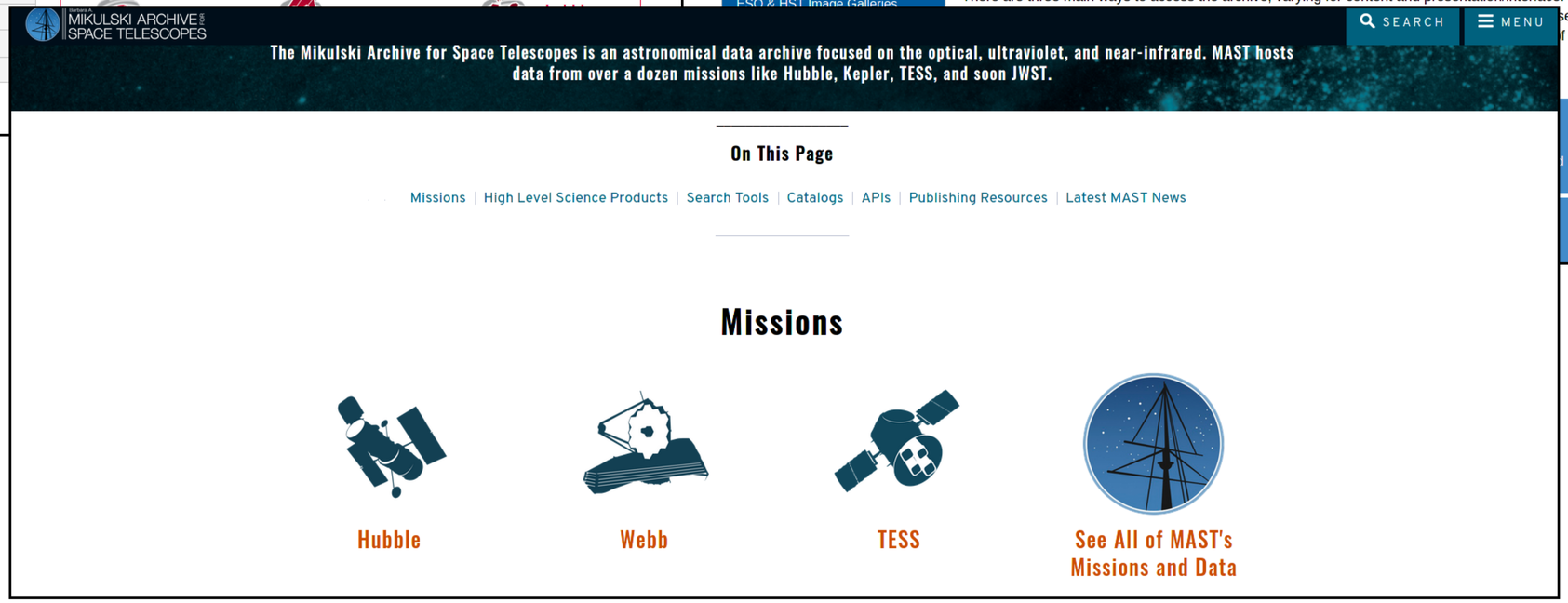




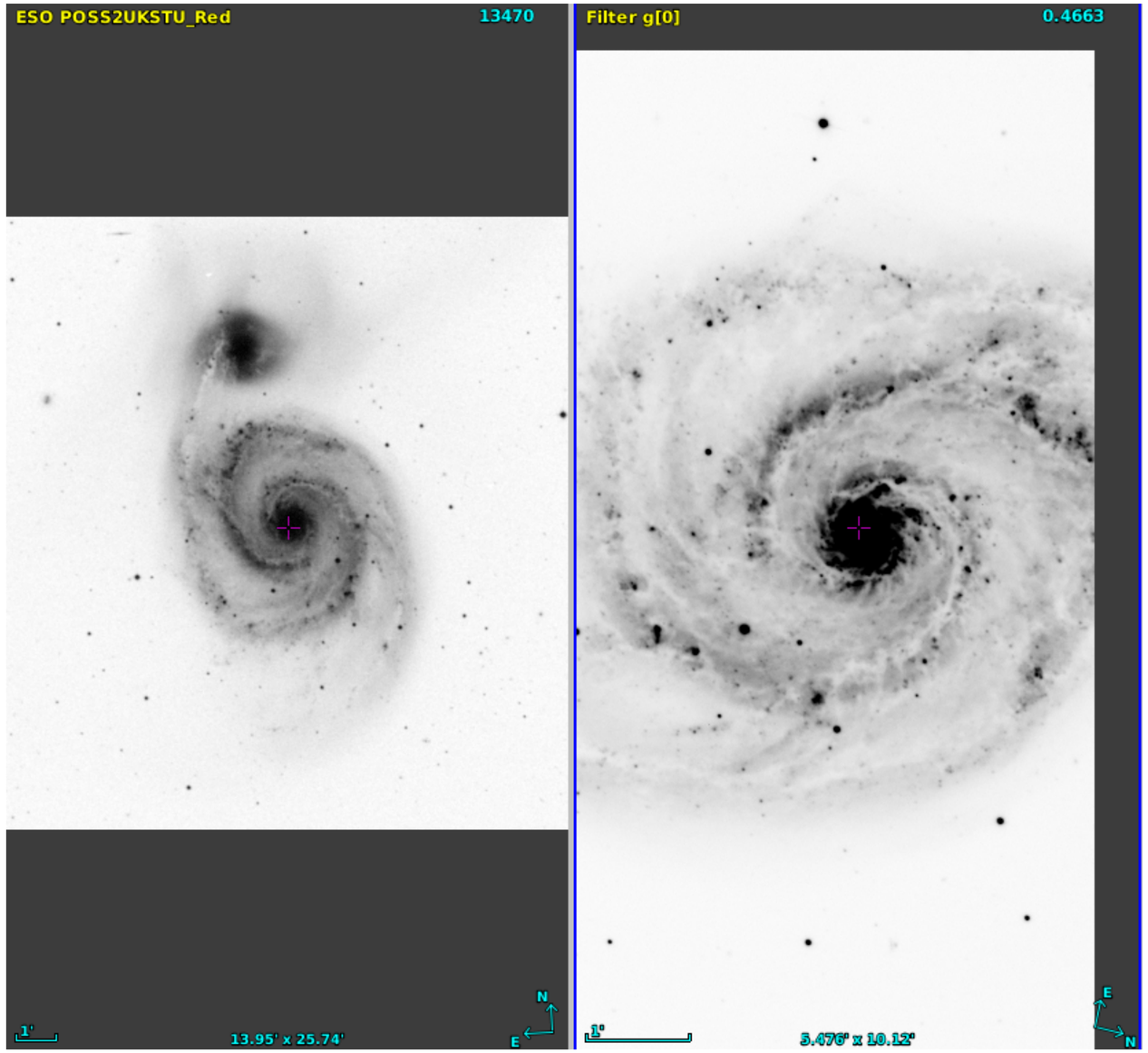
ASTRONOMICAL ARCHIVES



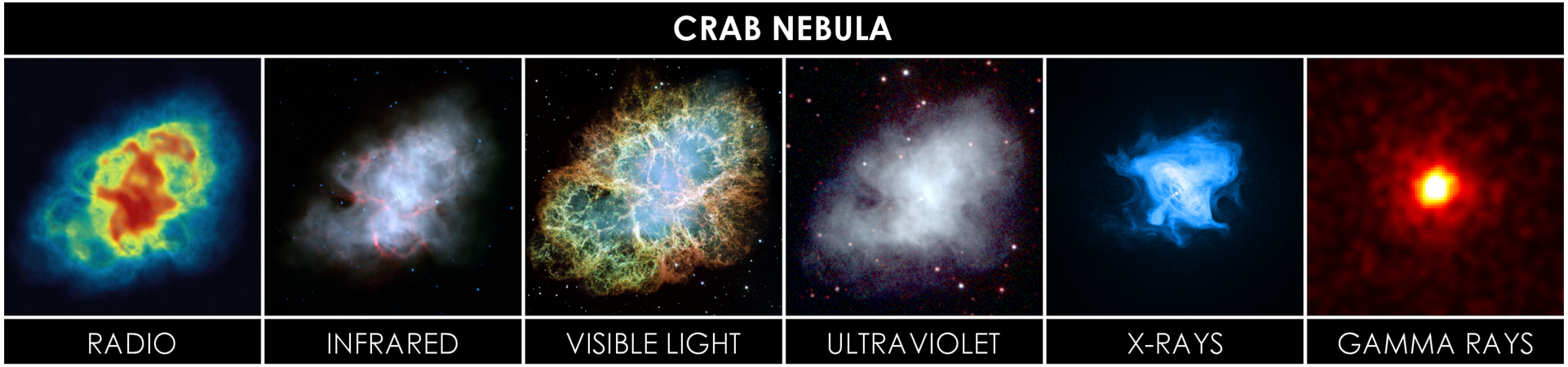




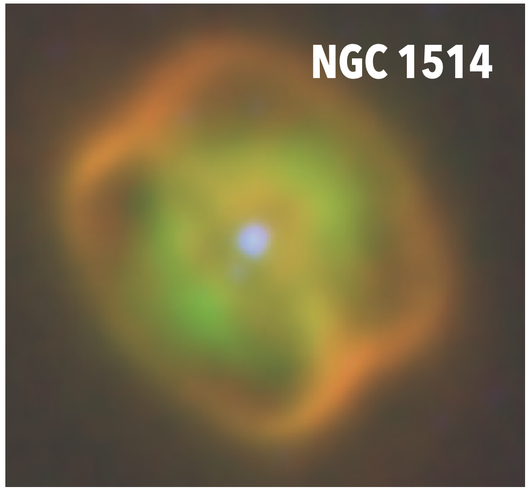
THE PROBLEM: **INTEROPERABILITY**



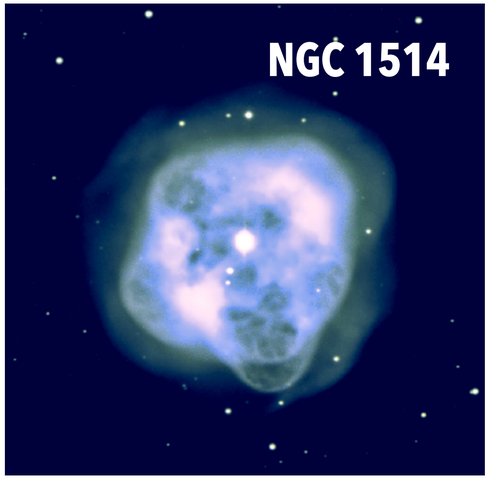
MULTI-WAVELENGTH ASTRONOMY



Credits: NRAO/AUI and M. Bietenholz; NRAO/AUI and J.M. Uson, T.J. Cornwell (radio); NASA/JPL-Caltech/R. Gehrz / University of Minnesota (infrared); NASA, ESA, J. Hester and A. Loll / Arizona State University (visible); NASA/Swift/E. Hoversten, PSU (ultraviolet); NASA/CXC/SAO/F.Seward et al.(X-rays); NASA/DOE/Fermi LAT/R. Buehler (gamma rays).

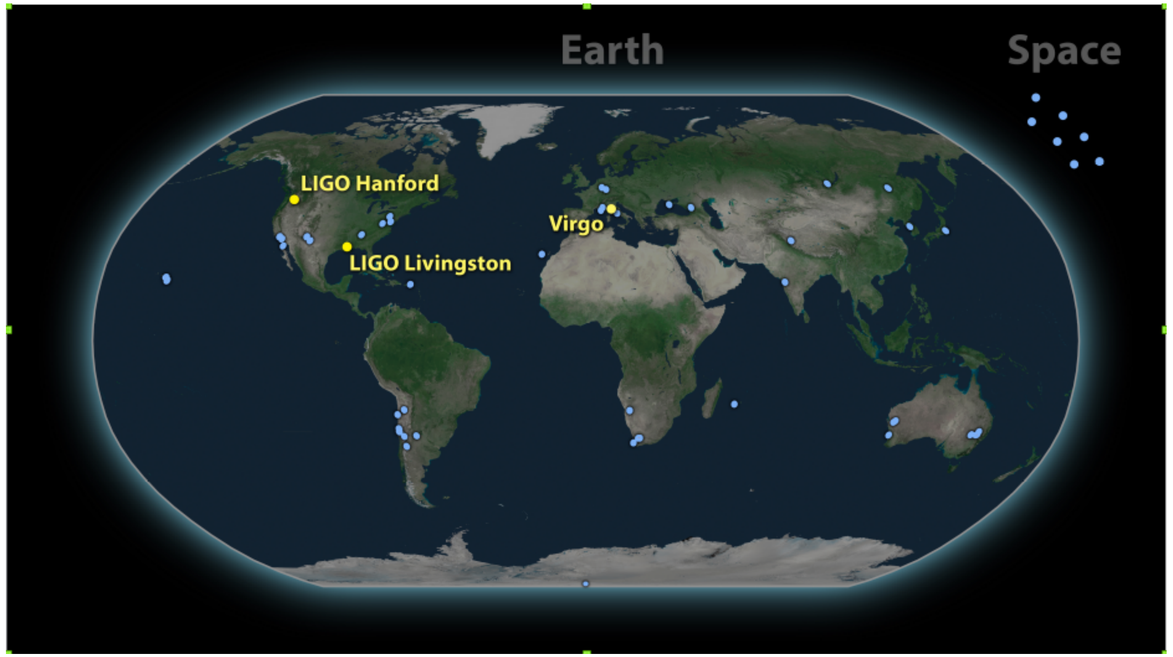


Credits: Ressler et al. 2010



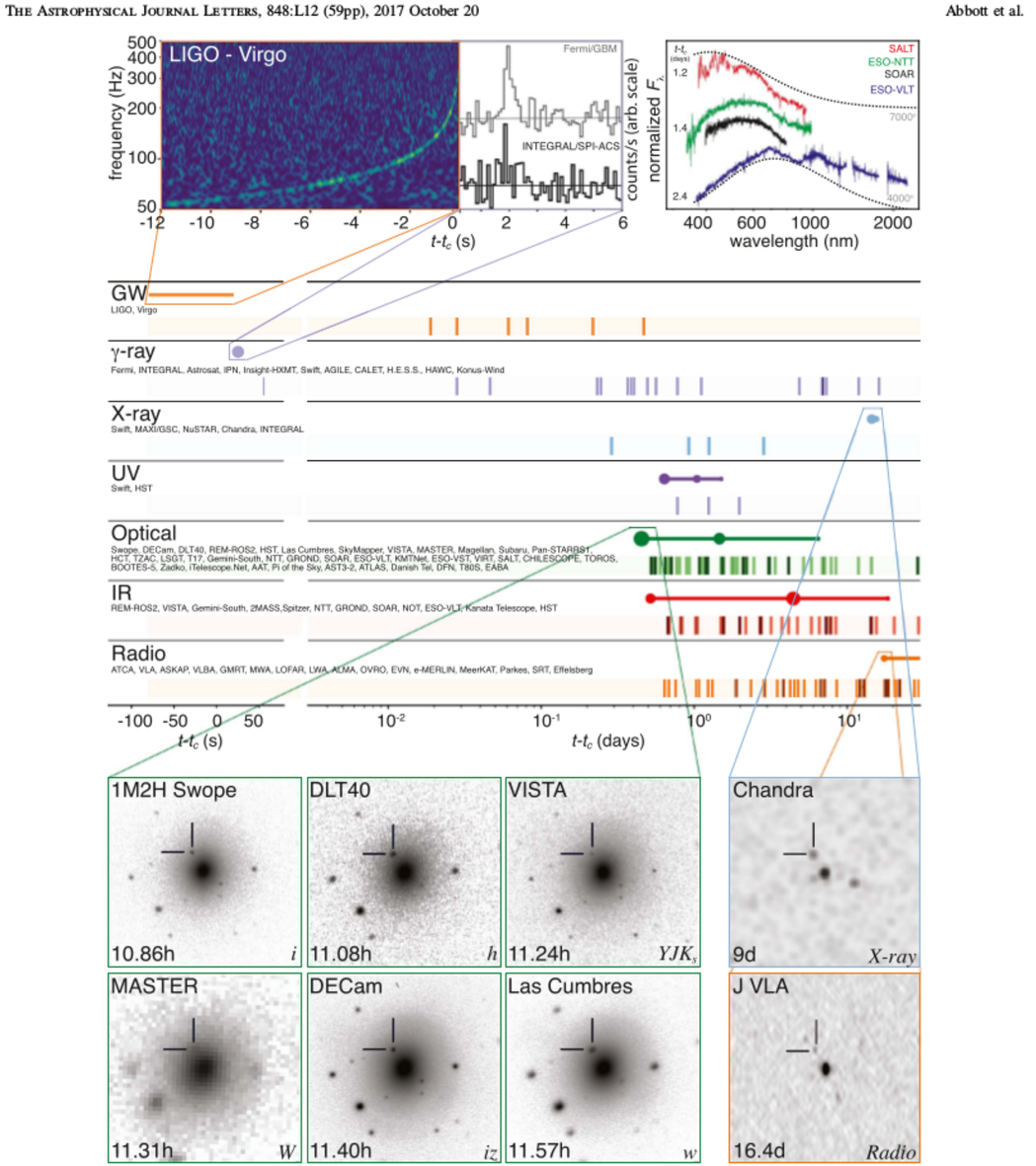
Credits: Jones et al. 2017

MULTI- WAVELENGTH ASTRONOMY

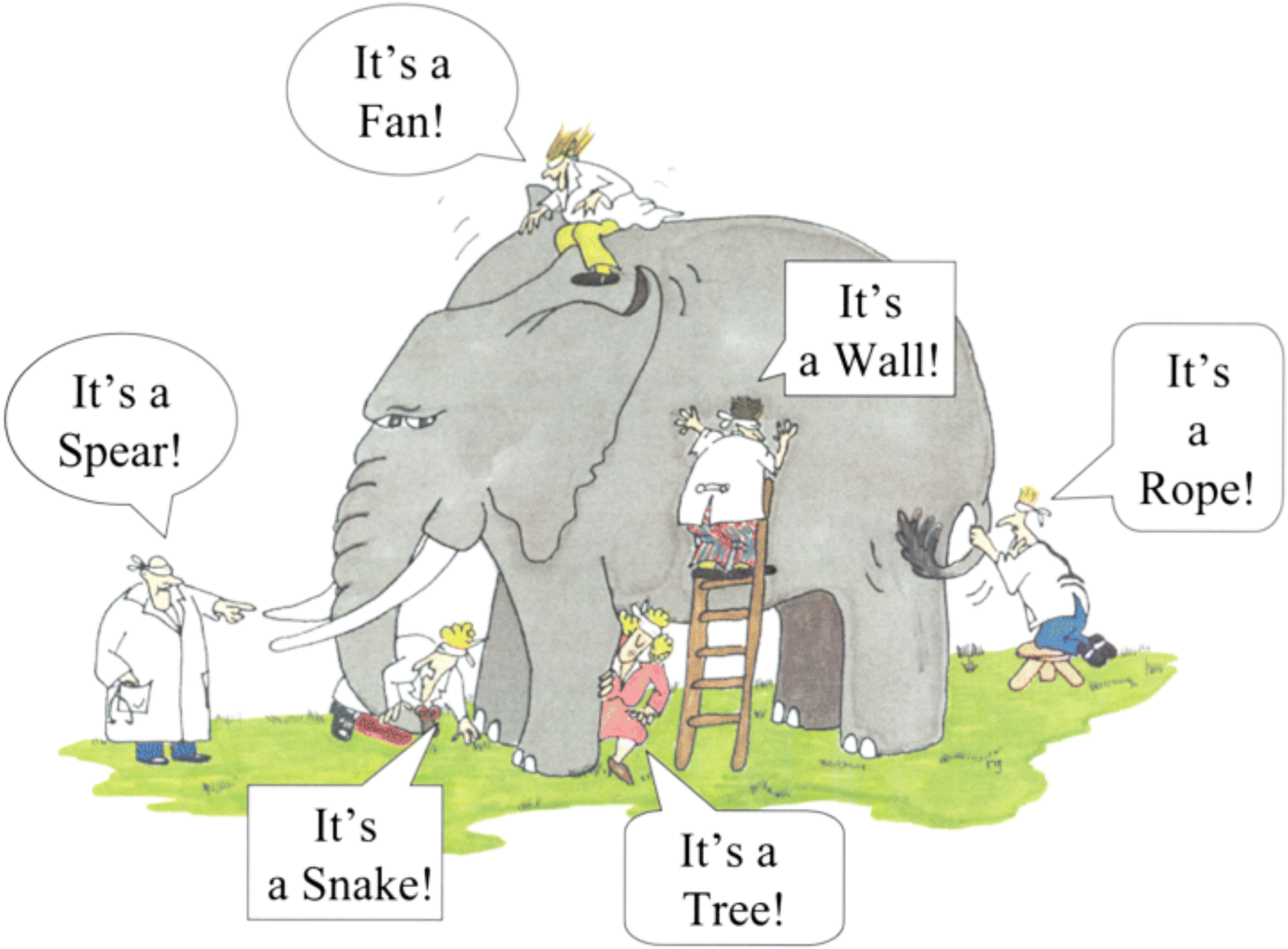


GW170817

~ 4000 astronomers
~ 900 groups



MULTI- WAVELENGTH ASTRONOMY



MULTI- WAVELENGTH ASTRONOMY

THE ASTROPHYSICAL JOURNAL, 644: L75–L78, 2006 June 10

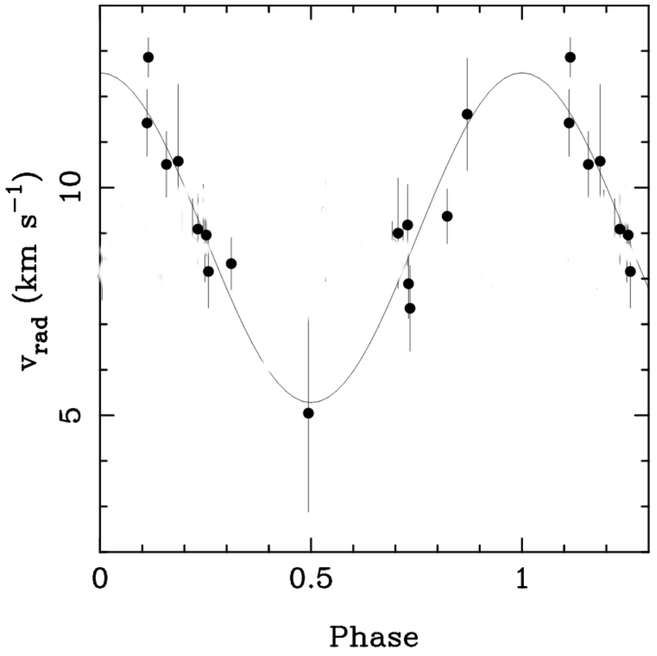
A MULTIWAVELENGTH RADIAL VELOCITY SEARCH FOR PLANETS AROUND THE BROWN DWARF LP 944-20

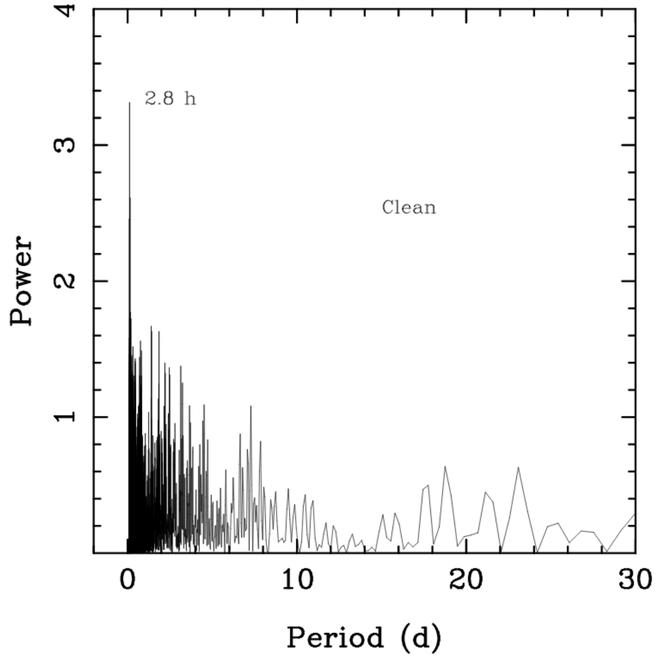
E. L. MARTÍN,[1,2] E. GUENTHER,[3] M. R. ZAPATERO OSORIO,[4] H. BOUY,[1] AND R. WAINSCOAT[5]

Received 2006 April 10; accepted 2006 April 25; published 2006 May 26

Optical range (UVES/VLT):

- 14 nights /841 days
- Period 2.5 - 3.7h





MULTI- WAVELENGTH ASTRONOMY

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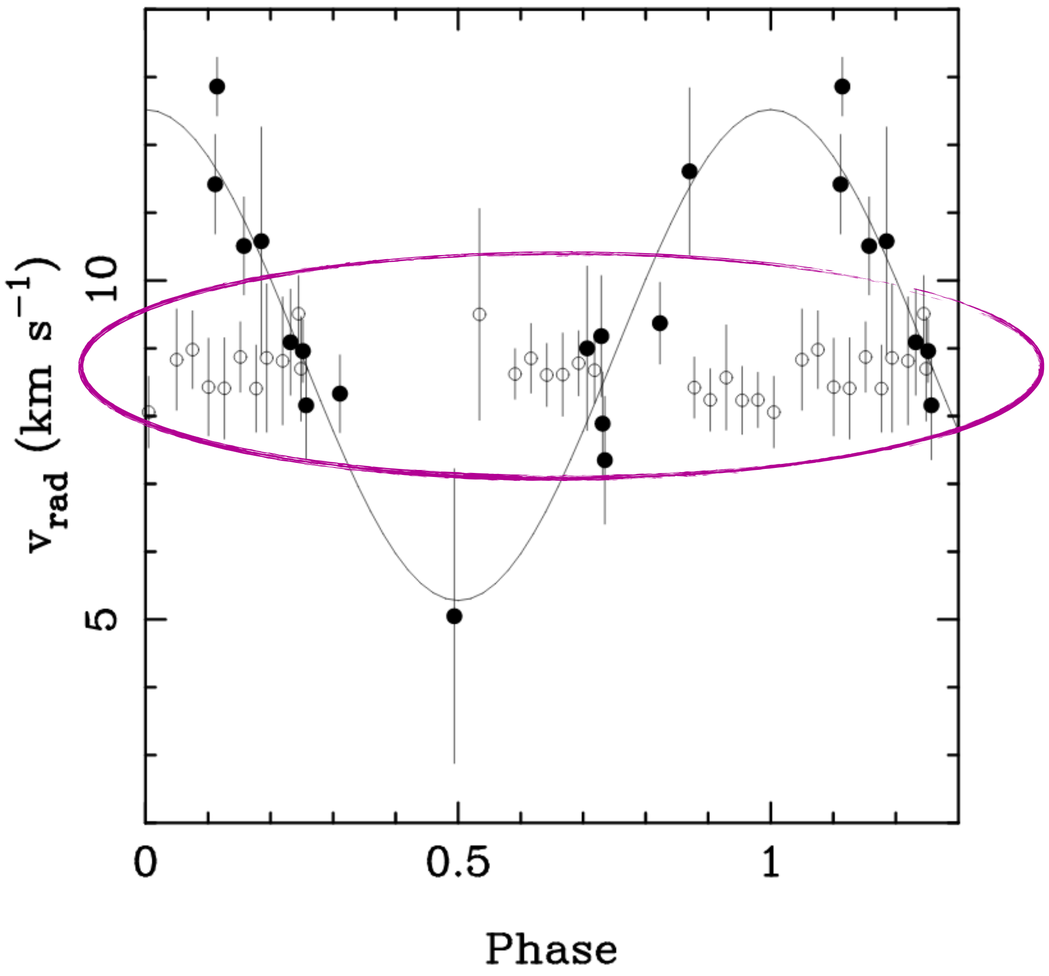
Received 2006 April 10; accepted 2006 April 25;

Infrared range



THE GOAL: MAKING DATA **F.A.I.R**

F A I R

Findable

Accessible

Interoperable

Reusable

THE INTERNATIONAL VIRTUAL OBSERVATORY ALLIANCE

Virtual Observatories of the Future

Caltech campus, Pasadena, Calif., USA
June 13 - 16, 2000
http://astro.caltech.edu/nvoconf
Email inquiries: *nvoconf@astro.caltech.edu*

MPA/ ESO/ MPE Joint Astronomy Conference

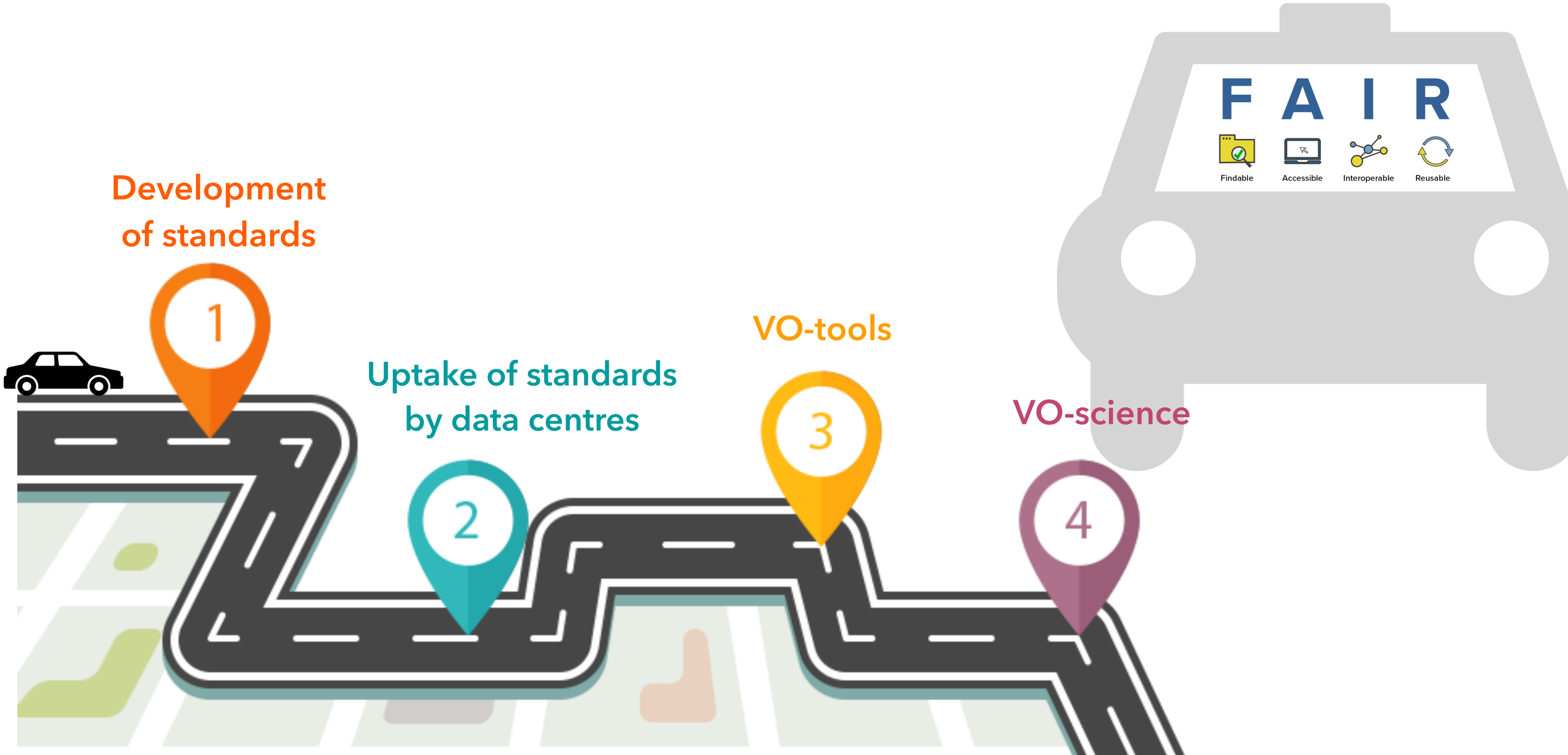
MINING THE SKY

July 31 - August 4, 2000

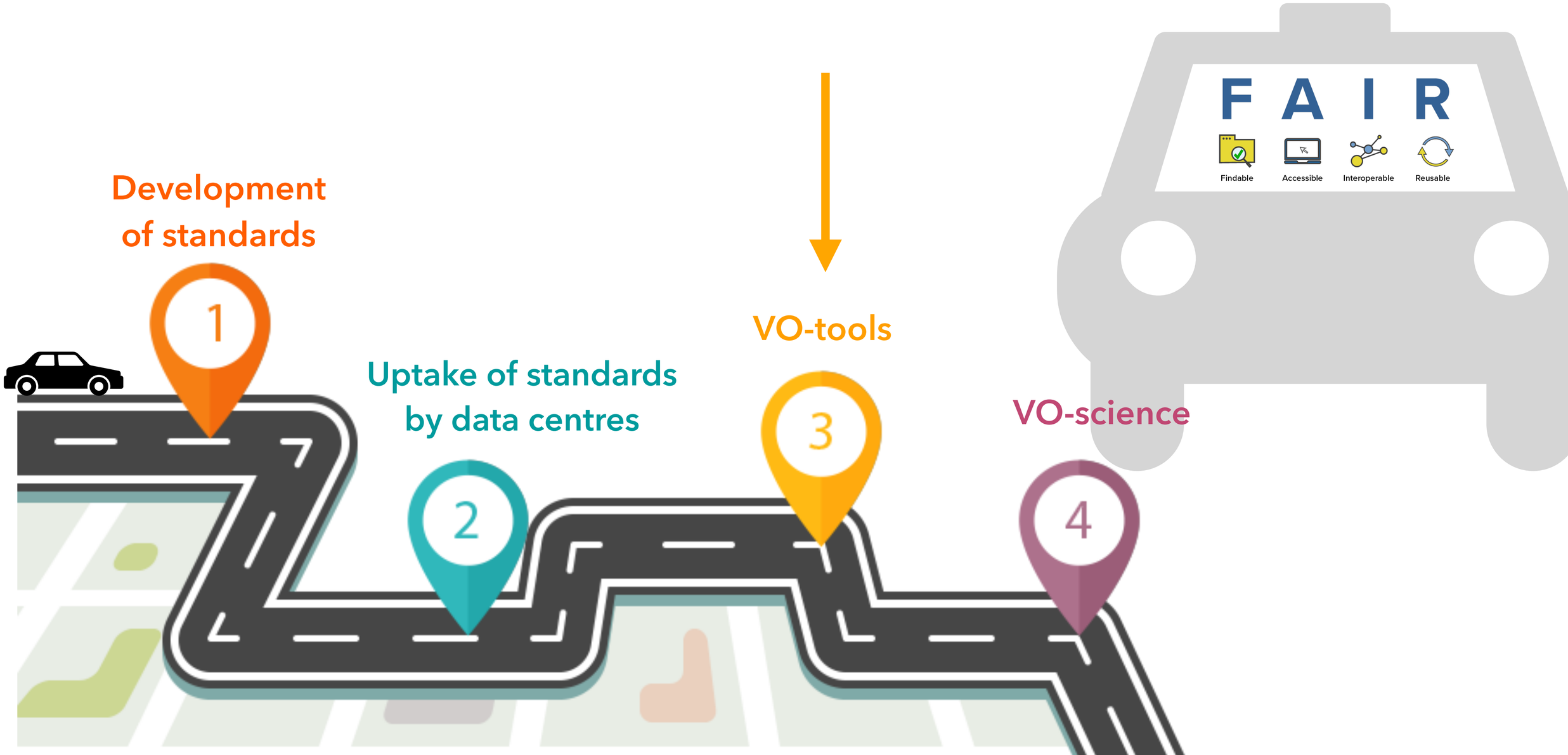
Garching, Germany

Astro Grid · ArVO · ASVO · BrAVO · China-VO · ChiVO · CVO · esa · EuroVO · France · GAVO · IVOA · HVO · JVO · NL VO · NOVA · RVO · NRF SA · SVO · UKR VO · USVOA · vo-i

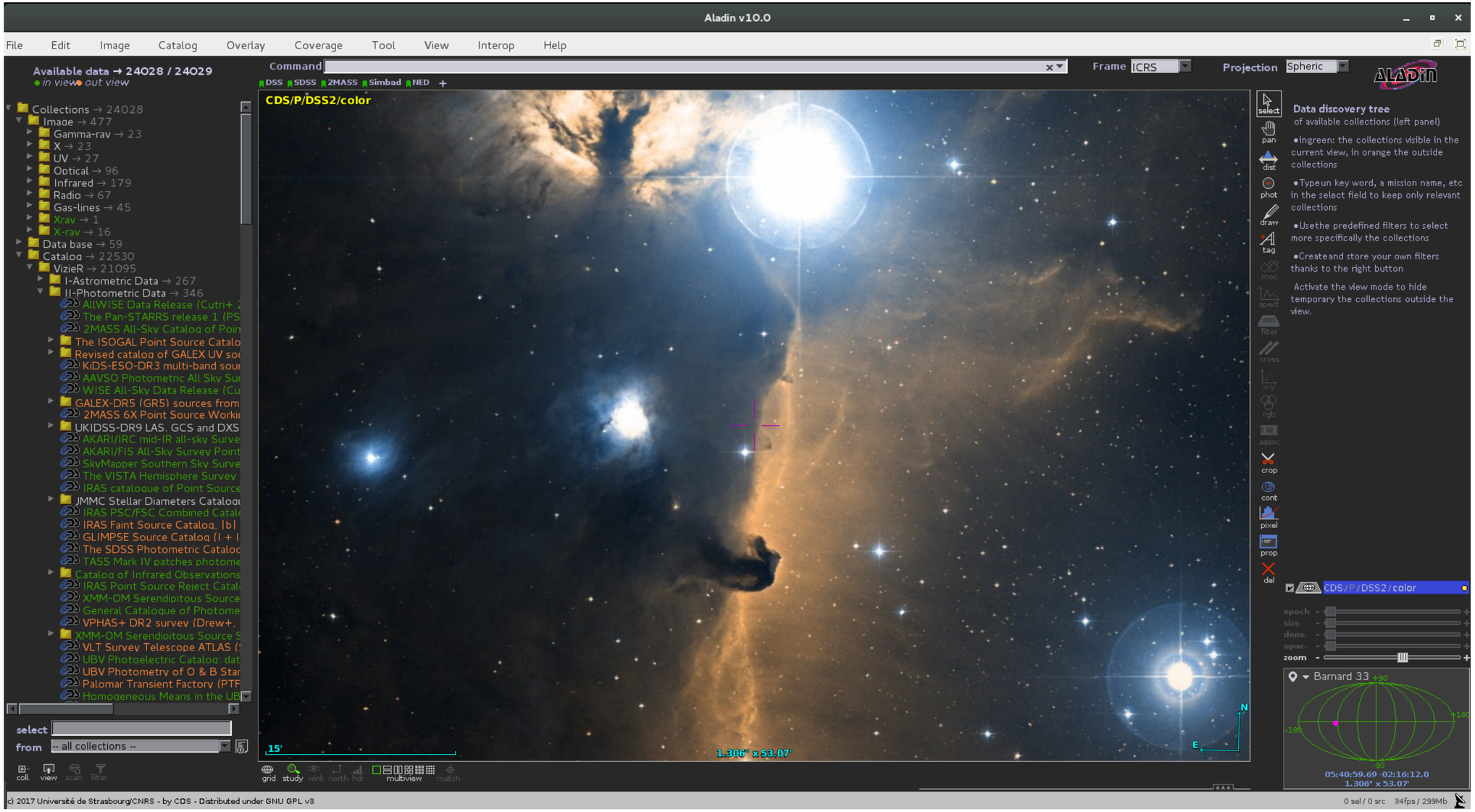
THE VIRTUAL OBSERVATORY ROADMAP



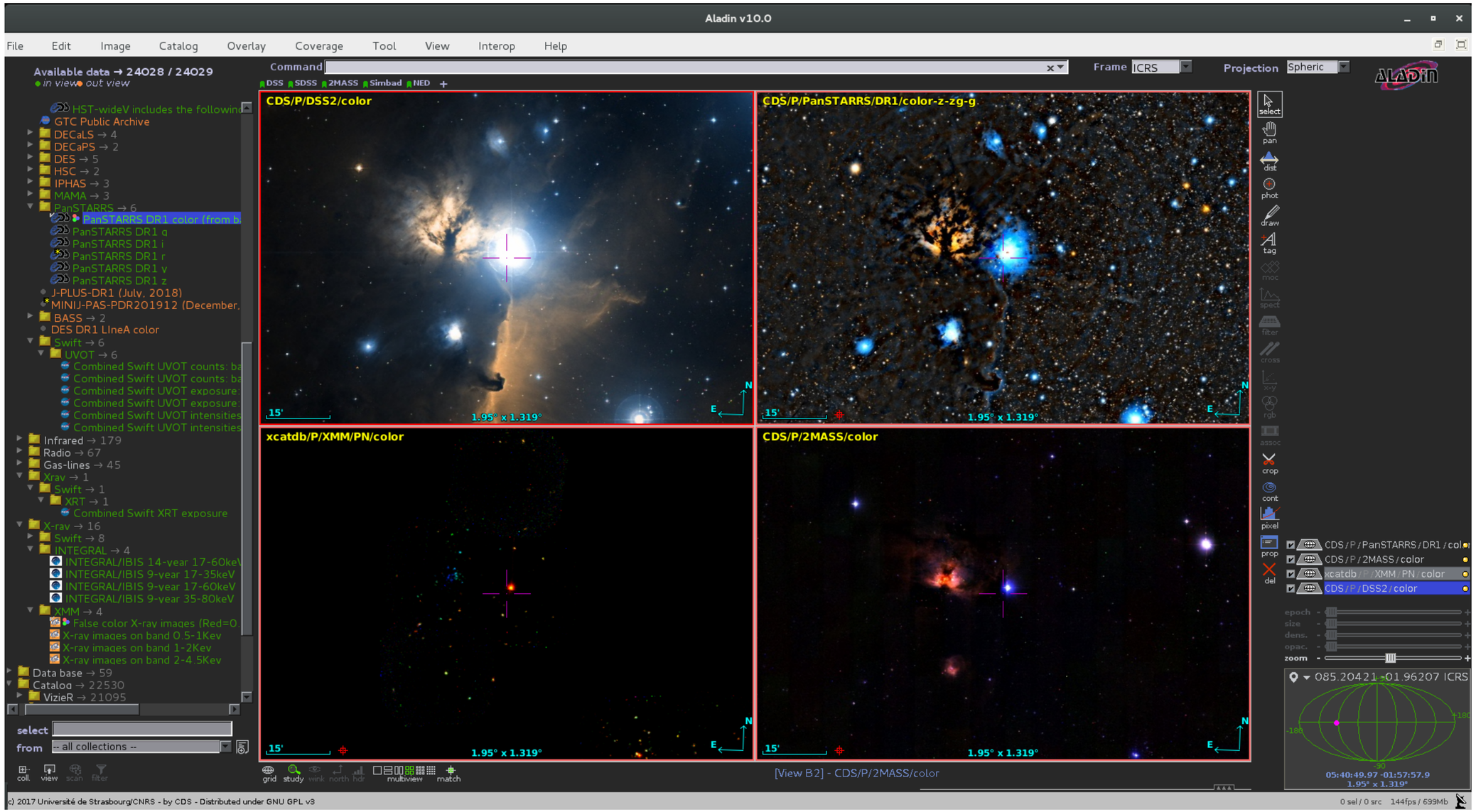
THE VIRTUAL OBSERVATORY ROADMAP



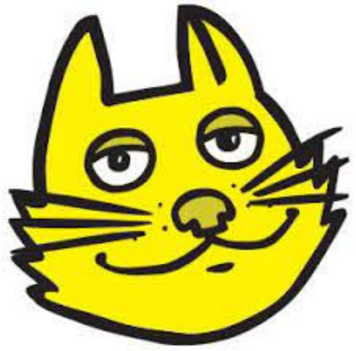
THE POWER OF VO: ALADIN

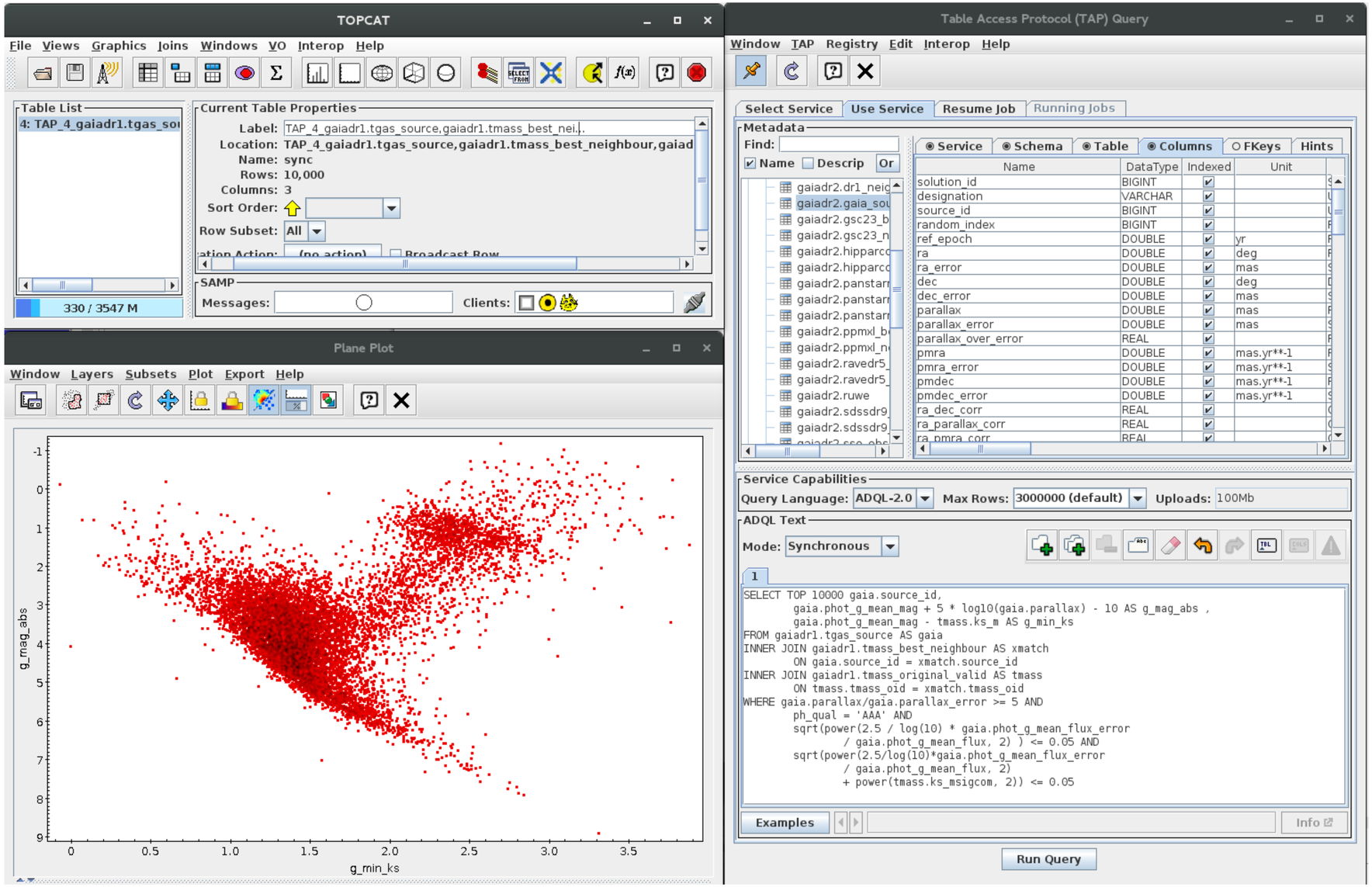


THE POWER OF VO: ALADIN

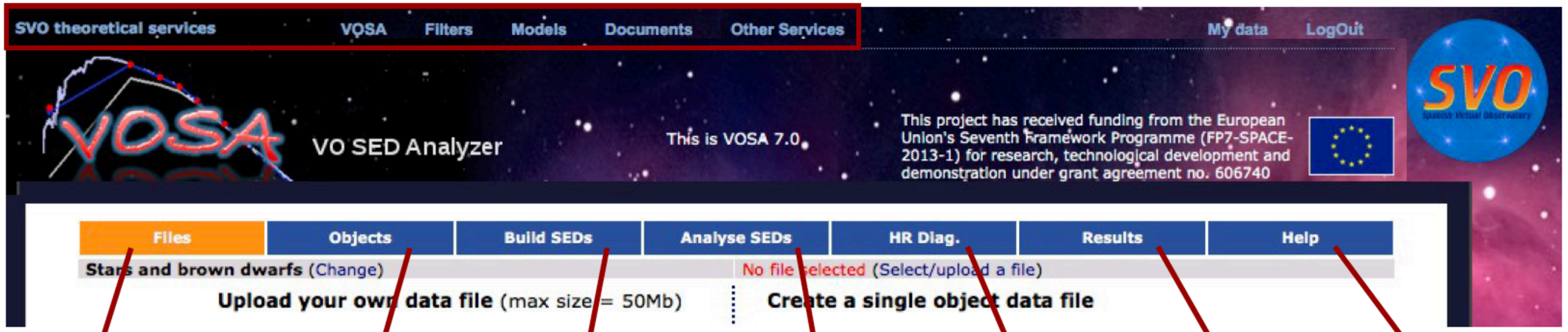


THE POWER OF VO: TOPCAT





THE POWER OF VO: VOSA



Upload files
Select objects

Objects
- Coordinates
- Distances
- Extinction

Build SEDs
- VO Photometry
- SED edit/visualize

Analyse SEDs
- Chi-square Fit
- Template fit
- Model Bayes Analysis
- Template Bayes Analysis

Generate
HR diagram

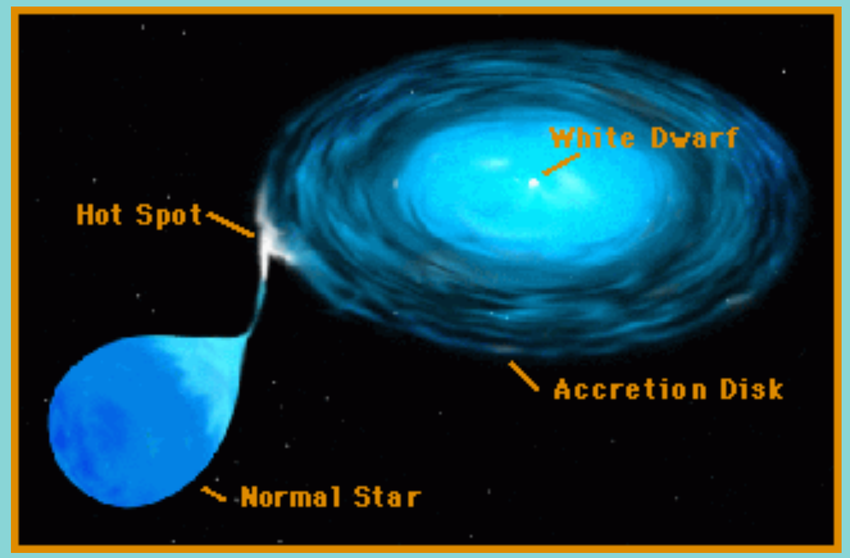
Results
- Download Results
- Activity Log
- References

Access
detailed
help files

THE POWER OF VO: VOSA

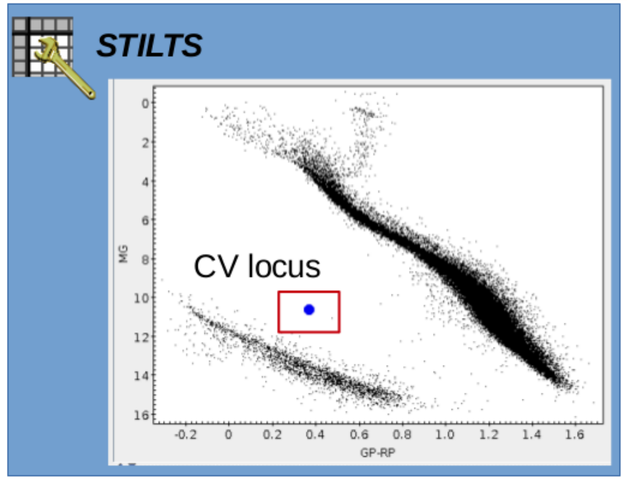
THE POWER OF VO: **TRANSIENTS**

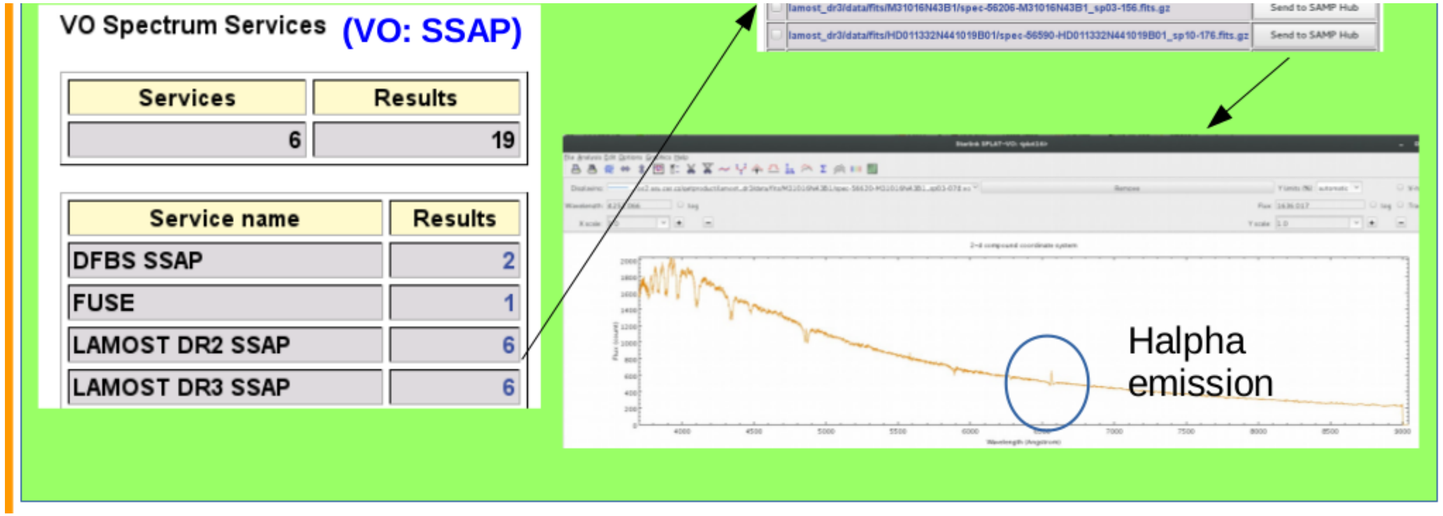
WORKFLOW: Discovering new **Catacysmic Variables** with VO tools

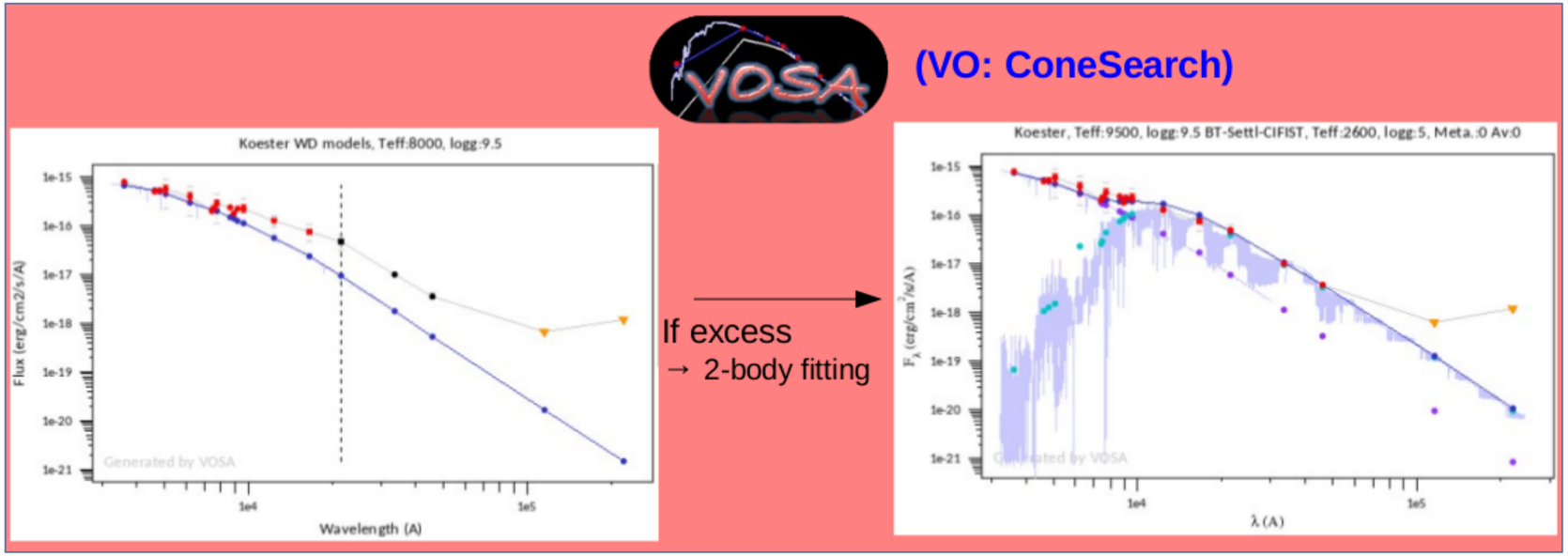


- Halpha emission due to accretion
- Close binaries (WD+Main seq.) –> composite SEDs
- Well defined locus in the HR diagram

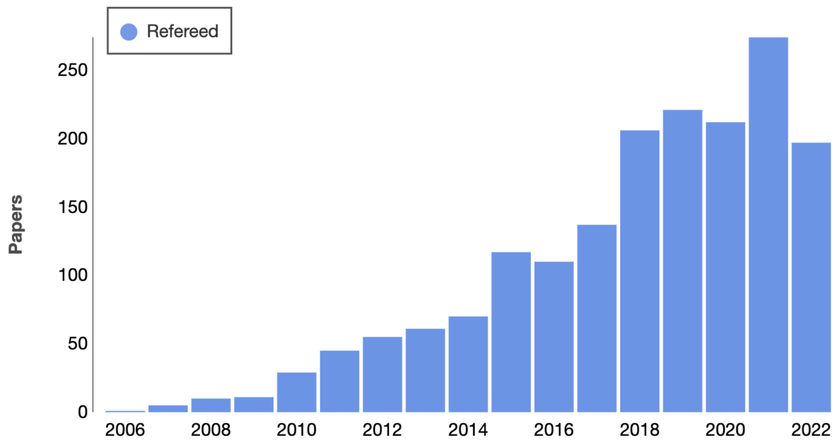
THE POWER OF VO: **TRANSIENTS**

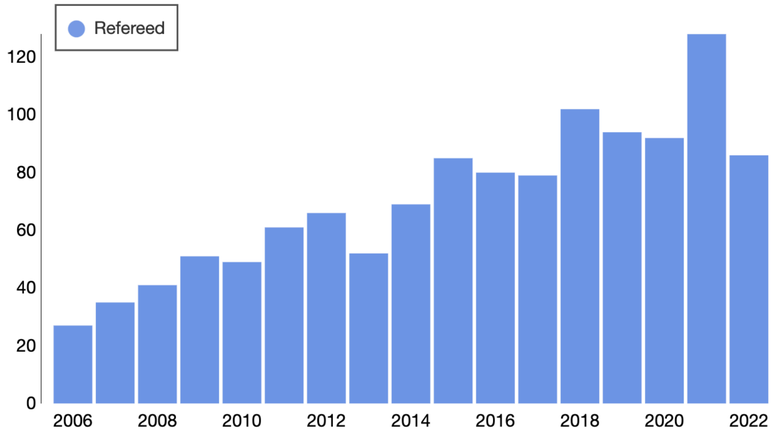


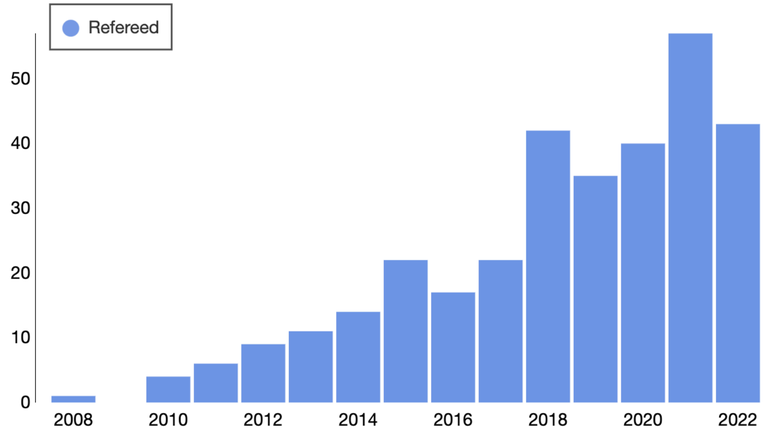


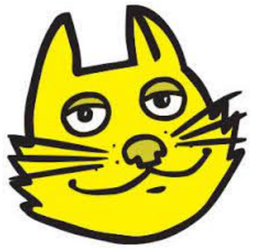


HOW USED ARE VO-TOOLS?

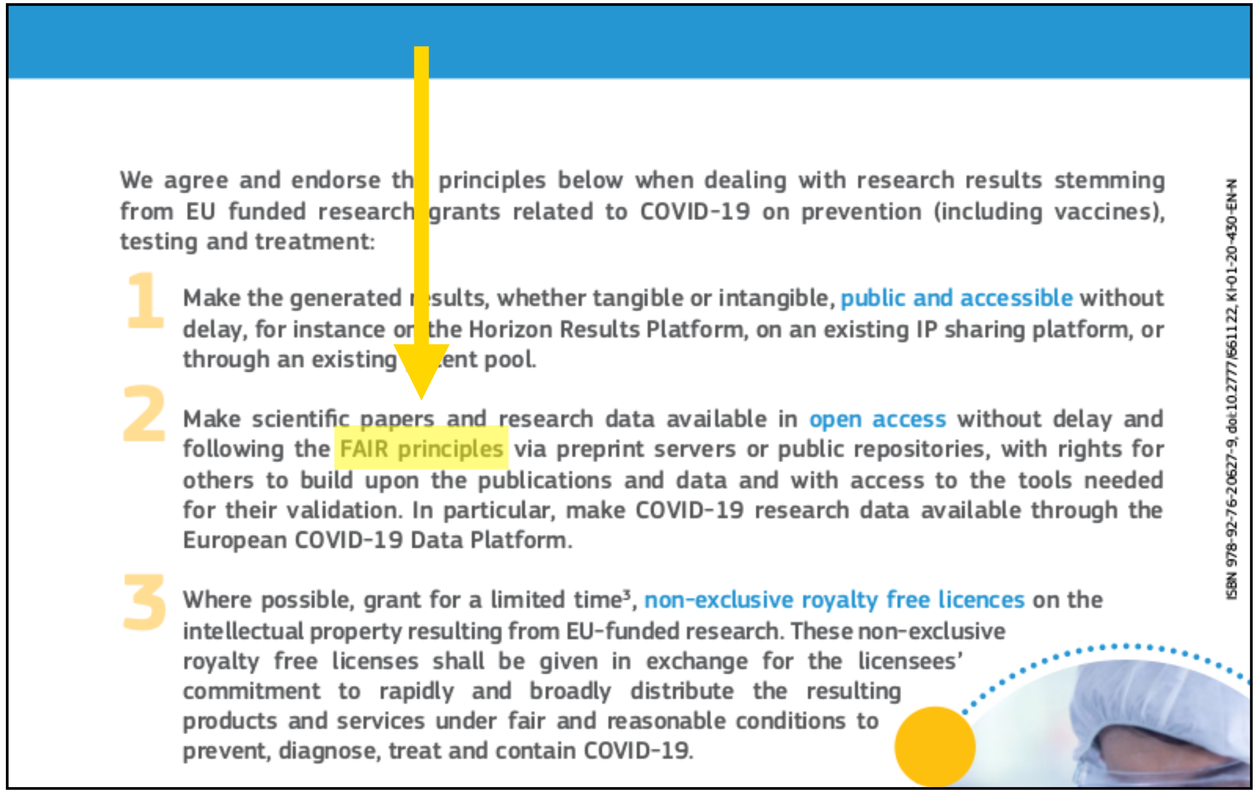






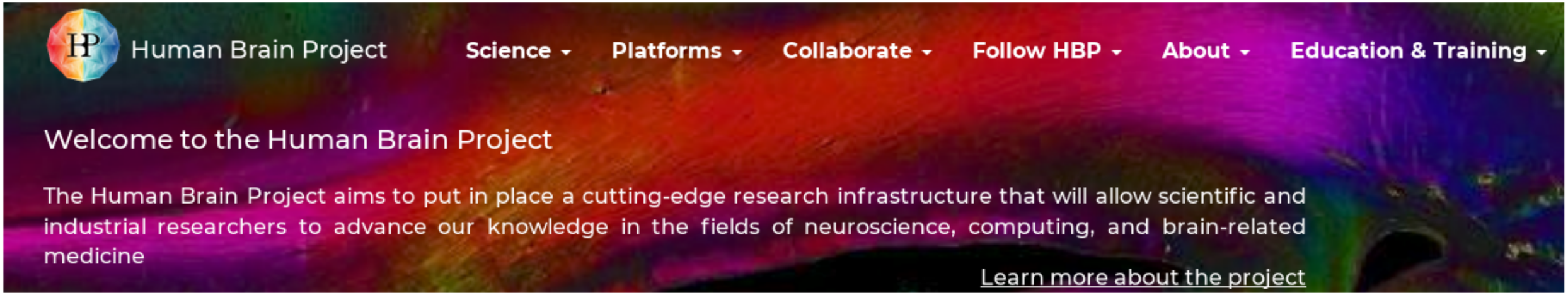


F.A.I.R. PRINCIPLES BEYOND ASTROPHYSICS



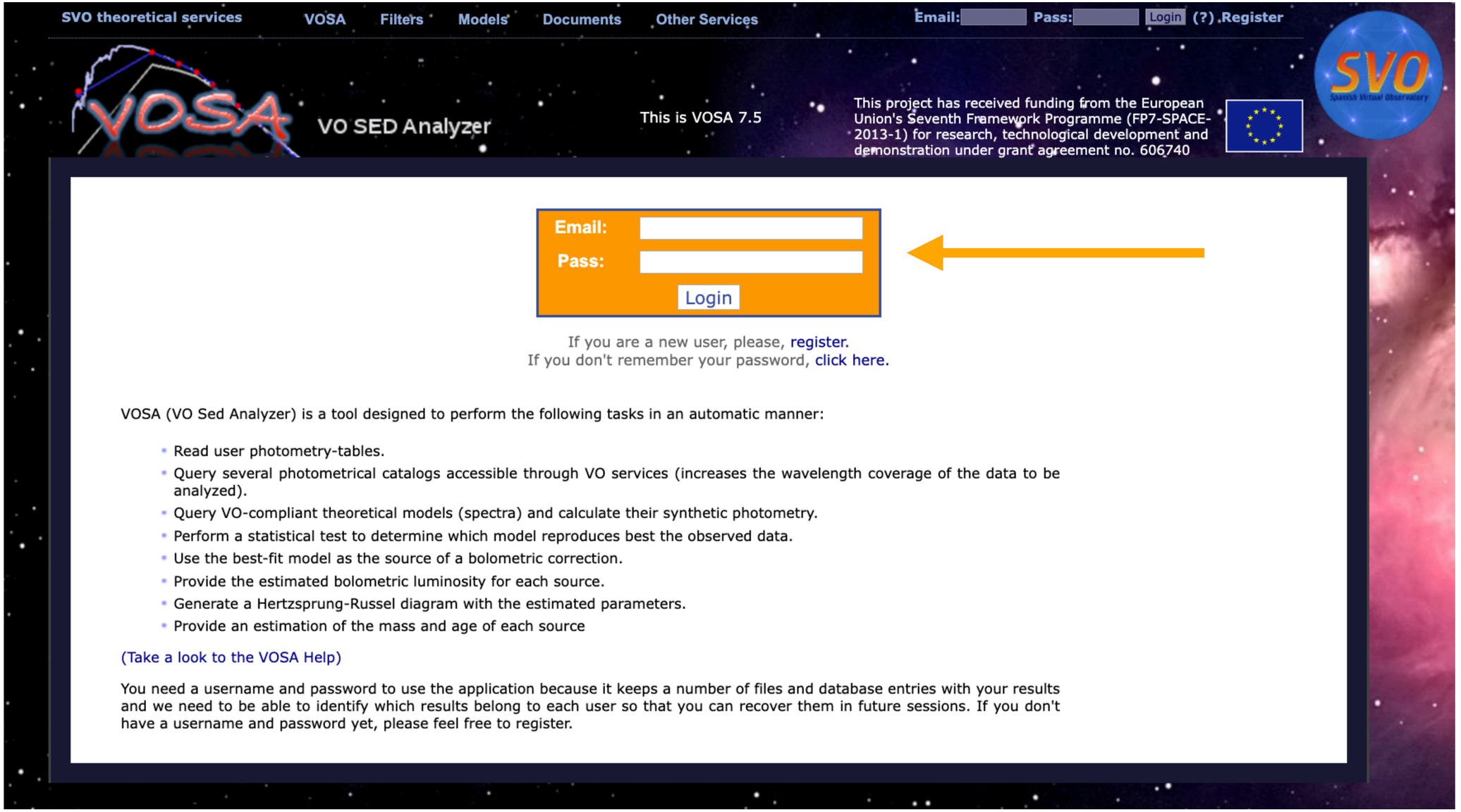
The FAIR principles are fulfilled in Astronomy thanks to the Virtual Observatory making reality what in other disciplines is just a dream

HILL: I felt a little bit like I stepped into the future when I went to a meeting of the virtual observatories in astronomy. They've already done a lot of the things that we're aiming to do in the sense that they've got observatories from all around the world that are sharing, through a common infrastructure, the data that they're measuring. And they're integrating it into a unified picture of the sky and our universe. These same data contribute to building large-scale simulations of the universe. I think that's extremely inspiring. If we can have a common infrastructure that allows us to have a globally integrated view of the data being produced, and the tools to run large-scale simulations from the data, we will really have made progress in neuroscience.



FINAL REMARKS

If you have any question please, let us know: svo-support@cab.inta-csic.es



http://svo2.cab.inta-csic.es/theory/vosa/