

# Astro-CC European Data Provider Forum



## Rapport sur les contributions

ID de Contribution: 1

Type: **Non spécifié**

## **Integrated Programmatic Access at ESO**

*jeudi 26 mars 2026 09:00 (15 minutes)*

**Orateur:** CARMONA LOAIZA, Juan Manuel (ESO)

**Classification de Session:** Welcome and Logistics

ID de Contribution: 2

Type: **Non spécifié**

## Modernizing ESA Science Archives: Reusable Components and Automated HiPS Generation in a VO-Aligned ecosystem

*jeudi 26 mars 2026 09:20 (15 minutes)*

Recent developments at the ESAC Science Data Centre (ESDC) significantly enhance how the scientific community accesses, explores, and exploits mission data. Two key innovations will be highlighted in this talk: the automatic HiPS generation pipeline for XMM-Newton and the set of widgets deployed within a modernized infrastructure, to be integrated seamlessly within the different Science Archives. Together, these tools demonstrate the commitment to interoperability, reusability, and rapid application development, while strengthening alignment with Virtual Observatory (VO) standards. The introduction of reusable pipelines and widgets has significantly streamlined application development across ESA science data services. This eliminates the need to develop the same component for different missions again and again, reducing both development time and long-term maintenance effort. By centralizing optimisation in a single shared component, any enhancement will benefit all missions simultaneously. The new automatic HiPS generation for XMM-Newton science data, based on HipsGen, enables continuous production and updating of sky maps in accordance with the HiPS standard. This ensures that high-level data products remain fully compatible with a wide range of visualization applications (e.g., Aladin Lite, ESASky). As a result, users have faster access to up-to-date XMM data through an interactive sky view linked to the XMM Science Archive (<https://nxs.esac.esa.int>). The ESDC Search Panel widget introduces a mission-agnostic, reusable component for data discovery. Its design, based on the common TAP protocol, provides the Science Archives with the capability of executing searches by any of the filters available in the table provided, eliminating the need for large forms and extensive scrolling to locate specific filters. This widget allows the user to select a column to filter, choose a comparator and define a comparison value (in some cases from a set of predefined values). It also supports the creation of condition groups: filters within the same group will be concatenated using “OR” clauses, while different groups are combined with “AND” clauses. Additional metadata (column name, description, type, UCD...) are provided to support users through the TAP. This approach allows for flexibility and for virtually any search request to be constructed and executed. Complementing this, the ESDC ADQL Console widget provides an interactive TAP/ADQL query environment. Within this component, all tables available through the TAP, including the associated metadata, are provided in a tree. Using this information, users can create their own ADQL query, based on the information available, removing limitations set by pre-defined filters provided in a form. Requests across different tables are now possible, limited only by the users’ expertise. By embracing these standards and a common development workflow, ESDC enables faster delivery of high-quality applications across missions. This not only strengthens long-term maintainability for developers, but also empowers the scientific community with more responsive tools, richer data-exploration capabilities, and a consistent experience across archives. Together, these advances mark a significant step forward in ensuring that ESA’s expanding data holdings remain accessible, discoverable, and scientifically impactful for years to come.

**Orateurs:** ORTEGA PEREZ, Antonio (Starion for ESA); MASSELOS, Laura (Starion for ESA)

**Classification de Session:** Welcome and Logistics

ID de Contribution: 3

Type: **Non spécifié**

## Towards FAIR low-frequency radio data

*jeudi 26 mars 2026 09:40 (15 minutes)*

LOFAR is the world's largest low-frequency radio telescope. Since its official opening in 2010, it has produced data which has formed the basis for more than 1,000 refereed publications, spanning areas as diverse as extragalactic astrophysics, solar physics, and terrestrial lightning. The system is currently undergoing a major upgrade: over the coming years, it will become massively more capable and flexible, and will generate a dramatically larger volume of data. Around 50 PB of LOFAR data is currently publicly available through the LOFAR Long Term Archive. However, this data can be hard to discover, access, and use: the LTA predates much of the modern thinking around the FAIR principles. Further, while there are many data analysis tools available, they are inconsistent in terms of code quality, licensing, ease of use, and level of support. The LoFAIR project aims to change this. LoFAIR will upgrade the LTA to provide a fully-FAIR archive, and will roll-out a curated catalogue of analysis software for LOFAR data based on the Research Software Directory. Further, we will align this work with the broader community, notable the SKA Regional Centre Network, and will engage with the Radio Astronomy Interest Group in the IVOA. In this contribution I will discuss the context of the LOFAR data holdings, describe the current state of our software and data archive, and present our plans for the future.

**Orateur:** GRANGE, Yan (ASTRON, the Netherlands Institute for Radio Astronomy)

**Classification de Session:** Welcome and Logistics

ID de Contribution: 4

Type: **Non spécifié**

**TBD**

*jeudi 26 mars 2026 10:00 (15 minutes)*

**Orateur:** VERSTRINGE, Freek (Royal Observatory of Belgium)

**Classification de Session:** Welcome and Logistics

ID de Contribution: 5

Type: **Non spécifié**

## **EPN-TAP access to Solar System data**

*jeudi 26 mars 2026 11:00 (15 minutes)*

**Orateur:** ERARD, Stephane (LIRA / ObsParis)

**Classification de Session:** Welcome and Logistics

ID de Contribution: 6

Type: **Non spécifié**

## Daiquiri - Python based framework for the publication of astrophysical data

*jeudi 26 mars 2026 11:20 (15 minutes)*

Over the years, the AIP has developed significant expertise in long-term operation and the curation of astronomical data archives. This experience is a major reason why the AIP is now one of the partner data centers for the ESA Gaia mission. The institute publishes not only its own telescope observations but also data from various international missions in which the AIP is involved. The range of data is huge, spanning from digitized photographic plates to spectroscopic and photometric data, solar data, to pure cosmological simulation data. This diversity is made possible by Daiquiri, a web-based platform developed at the institute. It supports standardized protocols from the International Virtual Observatory Alliance (IVOA) for data access and is available as open-source under the Apache2 license. Daiquiri was specifically developed to enable data providers to easily publish tabular data and associated files. The framework supports the VO TAP access protocol for scripted access, a web SQL query form and VOTables upload, as well as download in FITS, Apache Parquet and VOTable file format, all of which are available straight away. Daiquiri also enables public and restricted data access, as well as user management and project documentation.

**Orateur:** GALKIN, Anastasia (Leibniz Institute for Astrophysics Potsdam (AIP))

**Classification de Session:** Welcome and Logistics

ID de Contribution: 7

Type: **Non spécifié**

## SVOCat: Simplifying Astronomical Catalogue Publication for the Virtual Observatory

*jeudi 26 mars 2026 11:40 (15 minutes)*

This talk introduces SVOCat, an application developed by the Spanish Virtual Observatory and specifically designed to simplify the process of publishing astronomical catalogues. SVOCat enables data providers to transform their data into both a user-friendly web interface and a standardised Virtual Observatory (VO) service, supporting ConeSearch and SSAP protocols. We will present the features of version 3.1, highlighting how it facilitates the integration of catalogues into the global VO infrastructure and providing examples of its implementation in real-world scenarios. Furthermore, to better support data centres and streamline deployment, a dedicated Docker image and setup are now provided, ensuring a more efficient and scalable installation process.

**Orateur:** GUTIÉRREZ-SÁNCHEZ, Raúl (Centro de Astrobiología (CAB, CSIC-INTA))

**Classification de Session:** Welcome and Logistics

ID de Contribution: **8**

Type: **Non spécifié**

## Citing data query

*jeudi 26 mars 2026 12:00 (15 minutes)*

I will list possible contents extracted from VO that authors could reference or cite in the article. It includes acknowledgments, but also resources such as datasets (with persistent identifier like DOI) or services, which are used to generate an article. But it could also consist of giving a way to cite a query or a particular record.

**Orateur:** LANDAIS, Gilles (Observatoire Astronomique de Strasbourg, CDS)

**Classification de Session:** Welcome and Logistics

ID de Contribution: 9

Type: **Non spécifié**

## Compute4PUNCH & Storage4PUNCH: The Platforms for the analysis and Astronomical Data management

*vendredi 27 mars 2026 09:00 (15 minutes)*

Sky surveys in different electromagnetic wavebands and large cosmological simulations often result in significant astronomical data. The first challenge in this process is to have an efficient data management system where this huge amount of data can be stored and made available to the scientific community under the FAIR principle. Storage4PUNCH (S4P) is one of the major components of PUNCH that aims to address this challenge. It offers a platform that provides easy access to scientific data generated by particle-universe-nuclei-hadronic physics experiments, large simulations, and observations. Furthermore, analyzing such big data is required to unfold the secrets of the universe and its formation history, which is another real challenge. Data reduction and analysis tasks require powerful computing resources either to produce true sky brightness maps in a reasonable amount of time, post-process cosmological simulations, or to perform various scientific analyses. This is where the Compute4PUNCH (C4P) infrastructure comes in. The C4P infrastructure consists of high-performance, high-throughput computing machines offered under the PUNCH4NFDI project umbrella and is suitable for such use cases. In the first phase of PUNCH, a S4P access prototype and workflow example were developed to demonstrate C4P's efficiency in analyzing LoFAR and cosmological simulation data. To ensure reproducibility in research, these analysis pipelines and reference data are encapsulated in a workflow and made available as a digital research products. This talk will provide an overview of ongoing work in this area within PUNCH, as well as further advancements for seamless processing.

**Orateur:** GUPTA, Prateek (Thuringer Landessternwarte Tautenburg)

**Classification de Session:** Welcome and Logistics

ID de Contribution: 10

Type: Non spécifié

## Bridging Domain-Specific Data Center and Cross-Domain Metadata Frameworks

*vendredi 27 mars 2026 09:20 (15 minutes)*

### Bridging Domain-Specific Data Center and Cross-Domain Metadata Frameworks

Abstract The KASCADE Cosmic-Ray Data Centre (KCDC) is a domain-specific data provider for high-energy astroparticle physics. Established in 2013, it was among the first platforms to provide full open access to data from the KASCADE and KASCADE-Grande experiments. Over time, KCDC has expanded beyond experimental event data to include simulations, software, documentation, tutorials, and derived data products, reflecting the full digital research lifecycle typical for modern astroparticle physics. Operating KCDC over more than a decade required addressing a broad range of data curation challenges, including the management of heterogeneous digital objects, preservation of experiment-specific knowledge, and provision of sufficient contextual metadata to enable reuse beyond the original collaboration. These experiences have positioned KCDC as an active participant in the FAIR data community within fundamental physics. As a data provider, KCDC contributes to the PUNCH4NFDI (Particles, Universe, NuClei and Hadrons for Nationale Forschungsdaten Infrastruktur), which aims to federate data providers across astro-, astroparticle-, particle-, and nuclear-physics communities within a common Science Data Platform. Within this framework, we work on integrating KCDC digital resources into the PUNCH4NFDI infrastructure, addressing practical challenges related to metadata harmonisation, exposure of diverse data products, and alignment with infrastructure-level discovery and access services. In parallel, lessons learned from KCDC feed into the NAPMIX project, which develops a cross-domain metadata framework for nuclear, particle, and astroparticle physics. NAPMIX focuses on identifying shared metadata layers across disciplines and enabling FAIR data management at a cross-domain level while preserving necessary domain specificity. This contribution illustrates how lessons learned from operating a domain-specific astroparticle physics data centre support both infrastructure-level integration and cross-domain metadata development, highlighting transferable approaches to FAIR data publication.

**Orateur:** TOKAREVA, Victoria (KIT)

**Classification de Session:** Welcome and Logistics

ID de Contribution: 11

Type: **Non spécifié**

## **Update on the Vera C. Rubin Observatory's alert stream**

*vendredi 27 mars 2026 09:40 (15 minutes)*

The first alerts relayed by Rubin alert brokers are expected in February 2026. We will provide an update on the initial operations phase of Rubin Observatory and discuss how the Transient and Variable Science Collaboration is preparing, as well as how its microlensing subgroup plans to filter alerts.

**Orateur:** Dr HUNDERTMARK, Markus (Heidelberg University, ZAH)

**Classification de Session:** Welcome and Logistics

ID de Contribution: 12

Type: **Non spécifié**

## Spectra in the Virtual Observatory —From Under Both Hats

*vendredi 27 mars 2026 10:00 (15 minutes)*

The Virtual Observatory (VO) is often viewed by astronomers as a tool for convenient handling of large catalogues and imaging surveys, with cross-matching across electromagnetic and astroparticle domains as its key feature. Yet, although spectroscopy provides much of our understanding of celestial objects, spectral data management in the VO remains suboptimal and its full capabilities are underused. One of today's main research drivers —high-precision radial velocity analysis for exoplanet detection - still takes place largely outside the VO due to missing standards and suitable tools. Wearing several hats of researchers from different astrophysical fields, we will first envision the requirements for an ideal VO-compatible spectral analysis environment. Then, putting on the hat of a spectra provider, we will discuss what can already be achieved on the VO spectra server side without developing new protocols, data formats, or server functionalities, showing that many scientific needs can be met with a little effort using the existing tools.

**Orateur:** SKODA, Petr (Astronomical Institute Czech Academy of Sciences)

**Classification de Session:** Welcome and Logistics

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## **Introduction to Astro-CC**

*mercredi 25 mars 2026 11:20 (20 minutes)*

**Orateur:** ALLEN, Mark (CDS/CNRS)

**Classification de Session:** Welcome and Logistics

ID de Contribution: **14**

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## **Keynote**

*mercredi 25 mars 2026 11:40 (30 minutes)*

**Classification de Session:** Welcome and Logistics

ID de Contribution: 15

Type: **Non spécifié**

## Welcome and Logistics

*mercredi 25 mars 2026 11:00 (20 minutes)*

**Orateur:** DEMLEITNER, Markus Hans (Uni Heidelberg/GAVO)

**Classification de Session:** Welcome and Logistics

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## Lightning talks

*mercredi 25 mars 2026 12:10 (20 minutes)*

**Classification de Session:** Welcome and Logistics