

CoSADIE Data Centre Forum

Summary and conclusions

- A forum for the data centre community
 - “Tell the story” of what they do and of their relationship with the VO
 - Know each other better
 - Community building
 - Communication with the European/international VO community
 - Participants were very interested in presenting what they are doing (not only with respect to VO !) and interested in listening to what the others were saying
 - even an advertisement for positions 😊

- The data centre community which showed up here is very diverse, as expected
 - International agencies
 - International and national large projects such as CTA or GranTeCan - Calar Alto or Gaia
 - Smaller telescopes
 - Institutes (OP, AIP, ...)
 - Specific projects (surveys, topical projects)
 - Includes solar system sciences (planetary sciences, solar and heliospheric physics) (the Sun is a star!) and Cerenkov telescopes
- The Forum demonstrates the diversity of approaches and usages of the VO by data providers

- The elements for the system to work
 - The will of the data centres to show up in the VO – their own will or VO compulsory for some projects
 - A political decision to open data from a telescope/an instrument
 - IVOA to get the standards
 - Usable and useful standards
 - Top class clients – “Common tools” avoid developing your own tools
 - Support of knowledgeable teams is very useful/indispensable
 - It helps to have a national VO project which can provide help
- Data providers should envisage to follow VO developments to make sure that they fulfil their needs when they are not well served at present (multi-dimensional data including polarimetry, time domain, et al) – or make sure that their needs are gathered by national projects
- This participation is particularly useful on provision of use cases and checks of IVOA proposals

- Interdisciplinary aspects
 - Cerenkov telescopes, which are a new “window” of astronomy and one of the European priorities, are willing to join – discussion to go on (and interesting meeting point with particle physics culture) which will also bring insight to IVOA (e.g. on provenance, as discussed during yesterday working dinner)
 - “Nearby” disciplines such as planetary studies and solar/heliospheric physics ARE re-using the VO framework
- Two important motivations for astronomy users and other disciplines
 - Take advantage of the huge amount of intellectual investment on the IVOA standards
 - Take advantage of the clients, which can be complementary of the discipline specific tools

- “Political” aspects – wrt. European astronomy
 - *Networking* of European telescopes within a common strategic frame is one of Astronet strands of work - VO role in that respect has to be pointed at to them
 - *Integration* into a common framework – integration is also a strong keyword for EC
 - World-wide dissemination of European data
 - Top class clients give access to the data as well as to the data of any other telescope
 - In particular integration of smaller telescopes in the European/international framework and world-wide dissemination of their results

- “Political” aspects – for the VO
 - To my knowledge the first time this type of meeting is organised across borders (previous meetings in Europe and elsewhere on specific science topics)
 - Data centre staff are among the most active VO developers
 - But it is very important for the VO developers to grasp the whole data centre community
 - See how the standards are used (or not used)
 - Get feedback on functionalities and implementation and requirements
 - Tools and interoperability of tools are very important elements
 - Important to have the TCG here – Thanks, Séverin!

- Technical aspects
 - Registry is a critical element – has to be fully maintained and easily usable
 - Different level of VO support are possible (the iceberg metaphor) – think first about what you want to expose and about the context in which you work
 - Can be useful to have the VO in mind when building a new system or re-engineering an existing one (cf the “intellectual investment” put in the VO)

- “Support ObsCore” and have your own data model
- Use DataLink: you decide which associated data to provide
- Footprints/MOCs
- Libraries and publishing toolkits needed in Python and PHP to be more inclusive, whereas java is dominant at present. This is required to take into account the different levels of expertise of users (data centres and astronomers). Some already exist (DaCHS).
- Keep track of VO usage statistics when you publish data in the VO
- How to gather use cases from a wider base? i.e. how to engage new communities
- In some contexts get in touch with your informatics faculty – keeping in mind that you need operational systems
- Sustainability an issue for tools, toolkits, etc. Sufficient continuous local expertise needed to be a data publisher

- Time domain: different communities are interested, gather all the requirements will be important for success
- Some institutions host other people data
- Catalogues can be put in Vizier with full TAP as well as other types of data

- Difficulties

- The IVOA has its own schedule which may not match the development schedule of large organisations – specific surveys may have more flexibility.
- IVOA has to publish its own schedule, split large standards into more easily manageable pieces and provide foreseen completion dates
- Adjust your strategy towards the VO to the available local expertise
- Convincing communities: develop compelling examples can help
- DMs aiming at fitting everything versus building blocks for data models to allow community specific extensions?

- Measurement of success of a project: the amount of people not directly involved which have used the data
- On the way to have inclusion in VO being part of the normal business of data centres
- Optimum exploitation of your data sets
- Archives/databases as highly demanded research infrastructures
 - More access through VO than through other ways (web, etc.) (Calar Alto, VizieR)
- From using clients to publish one's own data
- VO can also be used to share private data

What to do next ?

How can Euro-VO support the data centres now and in the medium term?

- The meeting has been useful
 - Organise regular meetings
 - Yes, there is an interest in F2F meetings –information and inspiration
 - How to reach a wider community? Or choose a focus, and discuss how to reach it
 - Towards people preparing data?
 - Which content?
 - Regular “hands-on” meetings – combined with ‘forum’
 - Interest in hands-on + presentations
 - Would accelerate the VO learning and publication process
 - How to accommodate different needs ?
 - No end-to-end publishing but components
 - At least allows participants to learn the vocabulary
 - Some people are interested in understanding the VO. Explain the VO: ‘courses’ rather than hands-on?
 - Participants’ projects
 - Pre-cooked data to make exercises?
 - Warning: installation problems. Use virtual machines?
 - A VO school is not a database school
 - Including discussions of specific points of interest (eg, provenance yesterday evening)
 - Presentation of applications? But not duplicate IVOA – selection
 - From time to time a meeting similar to this one for exchange on activities
 - Community building : Exchange of tools and lessons learnt between the data centres (Forum!) – not specific to VO but useful. How? Stack exchange platform. Would also be used to organise meetings, and to poll the community for its interest in hands-on workshop and the workshop organisation and content

- Other actions
 - Provision and maintenance of toolkits and validators
 - This requires manpower
 - Provision and maintenance of on-line help
 - “How to publish data in the VO” in the IVOA pages – comments welcome
 - Regularly updated tutorials
 - Information on tools
 - On-line discussion tools: wiki, forum, mailing list?
Resources to maintain as part of Euro-VO external presence
 - How to share codes? Make codes community codes

- Support teams – in general not to do the job for you (although some do) but to give help
 - National VO projects – visibly a strong impact in building communities (cf the country repartition of the workshop participants) - they need national financial support
 - Provided through a European project for the other countries
 - Publishing in the VO requires a sufficient local expertise otherwise find another solution than a local dissemination service
- Exchanges between national projects to be organised by Euro-VO – they have different mandates given by their authorities and have different kinds of actions – informal gathering at IVOA?

- At VO developers' level (IVOA and VO teams)
 - Adjustments of existing standards and tools and development of new standards and tools to fit the data centre needs
 - Provision of implementation toolkits and validators
 - The registry has to work
 - Encourage users to ask questions, and tool developers to answer and take the questions into account
 - Use the questions to improve documentation

- Work with other disciplines on commonalities

- Thanks for your active participation
- Many elements to keep in mind for the future as suggestions to improve the situation