

LAEFF virtual astronomers

More often than not, discovery depends not as much on having the data as in knowing what to search for in them. The Virtual Observatory (VO) is a gold-mine of data, and of discoveries. So learning how to make the right questions is really worthwhile. That was the message conveyed at the last Science Seminar “Science with the Spanish Virtual Observatory” (2008 September 25) by LAEX astronomer Enrique Solano. LAEX, a laboratory of the Centro de Astrobiología (CAB), is responsible for the Spanish node of the Virtual Observatory.

Ten people make the Virtual Observatory team at LAEX. They are actively promoting the use of this innovative research tool among the Spanish astronomical community, and they are on the right track: Spanish astronomers are already making discoveries -and publishing refereed papers- based on data accessed through the VO.

The Virtual Observatory is an international initiative to help astronomers browse through the data obtained with ground-based and space telescopes of all kind. It is a relatively young project aimed at correcting a non-optimal situation, as Enrique Solano explained in his talk: “Astronomical archives have been built independently of each other, and their remote interoperability is neither easy nor efficient. The simultaneous query to multiple databases is done, most of the times, slowly and painfully by hand”. The ultimate goal of the VO, therefore, is making all astronomical archives interoperable: “All the world’s astronomical data should feel like it sits on the astronomer’s desktop”.

Open to astronomers from all over the world, the VO is being built so that users can enter and search all astronomical archives from just one ‘door’. Thanks to the VO, remote data can be handled as if they were local.

The VO team at LAEX think the project is mature enough so that the community can already feel its true scientific value. The Spanish astronomical community is reacting very positively, according to Enrique. A VO Spanish network with 100 members from 17 institutions has been created already. Also, Spanish astronomer author about half of the refereed papers published in the last two years based on VO data.

As an example of a VO discovery, Enrique mentioned the case of a very rare object found serendipitously in VO data. “We were comparing several fields, retrieved through the VO and chosen randomly, to study certain type of objects in a star forming region. Then we came across this weird object. Again we did a VO search and realised it had been known already in the XIX century, without no-one paying any attention to it. Our simple search revealed the object, called CPD-20 1123, is a very special star, of which very little are known: a bright He-B subdwarf. We will now conduct a specific search to find more of them”.

The message is: “VO-Science is not science-fiction. It already exist!”, says Enrique. “The uniqueness of the Virtual Observatory as a discovery tool, based on its capability of correlating and statistically analyzing large, multi-dimension data sets, is opening the possibility for discovering new features in known phenomena as well as totally unexpected astrophysics”.