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Editorial

The development, deployment, and impact of the virtual observatory, Part II

This is the second special issue of *Astronomy and Computing* devoted to the Virtual Observatory, and we again see a combination of papers covering various aspects of the VO, from infrastructure to applications to programmatics. The critical role of data models is described by Louys, and the method by which applications communicate amongst each other through the Simple Applications Messaging Protocol (SAMP) is described by Taylor et al. Demleitner et al. explain the client interfaces to the VO registry, that is, how applications developers can query the registry for information about VO-compliant data collections and services.[1] Castelli et al. discuss the use of VO services in building automated workflows and science gateways.

Turning to VO-enabled applications, Taffoni et al. demonstrate the use of a workflow technology in building a database of stellar evolution models, and Kovaleva et al. describe the use of and compliance with VO standards in building the Binary star DataBase (BDB). Kembhavi et al. implemented AstroStat, a statistical analysis package based on *R* but that accesses data and communicates with other VO applications through VO protocols. Lamy et al. show the adoption of VO interfaces and protocols in planetary science, in the Auroral Planetary Imaging and Spectroscopy (APIS) service. The use of VO protocols and services in the Visualization Interface for the Virtual Observatory (VisIVO) is described by Sciacca et al., and Schaaff and Jagade explore the deployment of VO-aware applications on mobile devices such as smart phones and tablets.

The final four papers in this issue focus on organizational take-up of the VO infrastructure and the management of the VO development and operations programs themselves. Economou et al. explain how the incorporation of VO technologies into the James Clerk Maxwell Telescope archive allowed them to provide better services to their user community while avoiding expensive replication of infrastructure software. Pasian gives an overview of the VO program in Italy, which although modest in its funding was able to make significant contributions to both national and international efforts (notably in professional outreach and education). VO development and support activities in Europe are described by Genova et al., where considerable effort was required to coordinate nationally-funded programs with Europe-wide programs funded by the European Commission, the European Space Agency, and the European Southern Observatory. The US VO program is reviewed by Hanisch et al., from its inception in 2001 at the National Virtual Observatory through its conclusion as the Virtual Astronomical Observatory in 2014.[2]

Although we do not anticipate further special issues on the virtual observatory at this time, we hope to see that the VO technologies and tools be further developed and widely deployed, and to have further reports regarding the VO in this journal in the future.

I wish to thank the editorial and production staff of *Astronomy and Computing* for their assistance and encouragement through the year it has taken to complete these two special issues.

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[1] The Demleitner paper is being republished here in order to appear with the other Virtual Observatory papers.

[2] Editorial responsibilities for the Hanisch et al. paper were covered by *A&C* Co-Editor-in-Chief R. Mann to avoid conflicts of interest in the review process.

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