

Data Models and Interoperability at High Resolution

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The science of high resolution space astronomy is inevitably multiwavelength, multi-scale and multi-instrument. This leads to challenges integrating disparate data sets at the level of basic data analysis, source characterization, source cataloging, and model fitting. At all of these levels, common data models can ease this integration for archives and algorithms. IVOA data models provide common metadata to describe imaging, spectral and time domain data. The models characterize local responses such as point spread function and thus allow software tools to be written to combine both multi-scale and multiwavelength data. We must now also develop source catalog data models which will allow us to address the problem of source identity on multiple scales: a simple positional search cannot distinguish an active nucleus, a VLBI core/jet-knot pair, a broad line emission region and a host galaxy all centered on the same celestial location, and a more sophisticated description is needed. Finally, with some high resolution techniques, deconvolution and aliasing issues mean that interpretation of the data is tightly coupled to modelling, and we must provide standardized ways to capture those assumptions in the archival metadata.