The Role of Virtual Observatories in Space Weather and HELIO Use Cases

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Abstract

Virtual Observatories provide a new way of exploit data. Using searches based on metadata they allow users to combine information from a wide range of instruments and address science problems that are much wider in scope than was previously possible.

Virtual Observatories are becoming an essential tool because of the dramatic increase in the volumes of data being produced by instruments. Without them we will reach a point where we can no longer manage the data properly and there will be an impact on the scientific return from the substantial investment that is required.

We review the role of virtual observatories and summarise the capabilities of those that have been established. We then look at the capabilities of the Heliophysics Integrated Observatory (HELIO) in detail and examine the science use cases that it will be able to address.

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Dr Robert Bentley has been studying the Sun for nearly three solar cycles. He has been involved in instruments on six missions and for over fifteen years has been involved in the archiving and exploitation of their data. He was the manager of the Yohkoh Data Archive Centre (YDAC) and Project Coordinator of the European Grid of Solar Observations (EGSO). He is currently the Project Coordinator of the HELIO and CASSIS project, both funded under the European Commission's Seventh Framework Programme (FP7).