

Preface

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On 9 February 2011 the two STEREO spacecraft reached a separation of 180° from each other, thus offering humanity its first view of the global atmosphere of a star. In addition, the STEREO observations are complemented by a large array of other space observatories distributed in the inner heliosphere: in orbits around Earth (*e.g.* SDO, *Wind*), around other planets (*Venus Express*, *Messenger*), and around L_1 (SOHO, ACE). This unique assembly

The Sun 360

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of instruments offers an unprecedented opportunity to understand the complex evolution of the solar corona and inner heliosphere across both temporal and spatial scales.

To discuss these opportunities and pull together the latest research based on the multi-point, multi-view observations of the inner heliosphere and corona, a meeting was held at the Christian-Albrechts-Universität in Kiel, Germany on 25–29 July 2011. The “Sun 360” meeting was a combination of the highly successful STEREO and SOHO Workshops with the international SDO Workshops forming a STEREO/SDO/SOHO Workshop. The combined workshop focused on the continuing scientific achievements of these missions in the broader context of understanding the Sun and its structuring of the inner heliosphere in 360°.

The resulting *Topical Issue* that follows this preface contains a wealth of insights spanning the full range of heliophysics research. The articles in this issue reveal the somewhat surprising longitudinal extent of SEP events, demonstrate our improved ability to connect CMEs with their interplanetary counterparts and solar wind to its source regions, and present detailed 3D studies ranging from EUV loop reconstructions to the evolution of prominences, and studies of the heliospheric current sheet to the association of CMEs to their source regions. Other articles deal with flare analysis, loop oscillations, and the newly emerging field of interplanetary nanodust detection. The workshop also included a number of reviews on 4π models of CME and ICMEs, on the nature of EUV waves, and solar-cycle predictions.

Fortunately, the 360° coverage of the corona and inner heliosphere is not a one-off occurrence. Thanks to the continuing operations of Earth-side observatories such as SOHO and SDO with similar instrumentation to STEREO’s, the global coverage of the Sun can potentially continue until 2019. This will allow us to study the evolution of the heliosphere and corona through the solar maximum and towards the solar minimum, further increasing our understanding of this complex system that plays such an important role in driving space weather at Earth and other planets. We are looking forward to many more results and successful workshops similar to “The Sun 360”.

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