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Recent and future observations connecting the solar wind to sources in the Sun's atmosphere

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The source regions of the solar wind, and their drivers and acceleration mechanisms, remain key topics of study in heliophysics with many open questions. One of the major challenges is to connect heliospheric measurements of the solar wind and solar energetic particles with possible source regions in the solar atmosphere, such as active region outflows and coronal holes, and there are now unprecedented opportunities with Parker Solar Probe (PSP) and Solar Orbiter (SO) in operation. There has been some recent success not only in connection science, but also in understanding the properties of these source regions using spectroscopic measurements from Hinode/EIS and IRIS, and high resolution imaging from Hi-C. I will give a brief overview of some of the recent developments, including results from PSP and SO/SPICE, and will outline some of the progress that can be expected from future high spatial and temporal resolution imaging spectroscopy from MUSE and Solar-C_EUVST. Finally, I discuss some advances in supporting numerical modeling that would aid in the interpretation of the observations.

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