

**Space Science Seminar
Tuesday, 2022 May 3
10:30 a.m.
NASA/MSFC TEAMS**

**Exploration of the Sources and Properties of the Solar Wind with Total Solar
Eclipse Observations**

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Host: Dr. Alphonse Sterling (Sponsored by NASA/MSFC/ST13)

The expansion of the corona with the solar wind offers unique clues for the physical processes shaping all objects in the solar system, most notably our near-Earth environment, as well as inferences of the essential plasma properties at the sources of the solar wind. Despite the current proliferation of space-based acquired images and spectra of the corona in a temporally uninterrupted manner, total solar eclipse observations in the visible and near infrared wavelength range retain unique diagnostic capabilities currently not exploited from existing space-based platforms. Their uniqueness stems from the properties of coronal emission lines, in particular the fortuitous presence of lines associated with different ionization states of Fe, coupled with a spatial coverage of 3 – 5 R_s above the solar surface enabled by the dominance of radiative excitation. This talk will highlight the latest discoveries and novel findings from eclipse imaging and spectroscopic observations acquired over the past 15 years.