Detection of Explosive Events in SORCE-Calibrated IRIS Full-disk Mosaics

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The *Interface Region Imaging Spectrograph* (IRIS) is a high-resolution UV imaging spectrograph that takes monthly full-disk mosaics (FDMs) of six solar transition region (TR) spectral lines. We have calibrated these IRIS FDMs using spectral data from the *SOlar Stellar Irradiance Comparison Experiment* (SOLSTICE) which was launched as part of the *Solar Radiation and Climate Experiment* (SORCE). Objects of interest to us, known as explosive events (EEs), appear as suprathermal broadenings in TR emission line observations. If the disk-integrated signature of EEs in the wings of TR emission lines can be clearly separated from continuum and instrumental backgrounds, then it will open a window to comparing solar and stellar atmospheres in quiescent (non-flaring) conditions. EEs have been identified in the calibrated IRIS FDMs, and their contribution to the full-disk integrated spectrum of strong TR lines has been quantified. These spectra could be compared directly to Hubble Space Telescope (HST) spectra of Sun-like stars. This study is inspired by the NASA suborbital sounding rocket mission known as the *Full-sun Ultraviolet Rocket SpecTrometer* (FURST) that is being developed for launch in 2022. FURST will obtain the first high-resolution, high-quality VUV spectrum of the Sun as a star, which will have broad applications in climate and solar system sciences, as well as solar and stellar physics. The calibrated IRIS FDMs can be used to simulate a small set of spectral lines in the FURST passband, allowing us to gauge whether detection of EEs may be accomplished using FURST spectra.