

# Thomas Metcalf SPD Travel Award Report

## Waves and Instabilities in the Solar Atmosphere (WISA) Meeting

### Northumbria University, Newcastle, UK (20-23 June 2023)



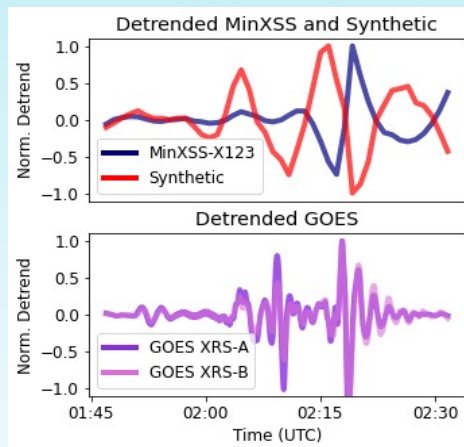
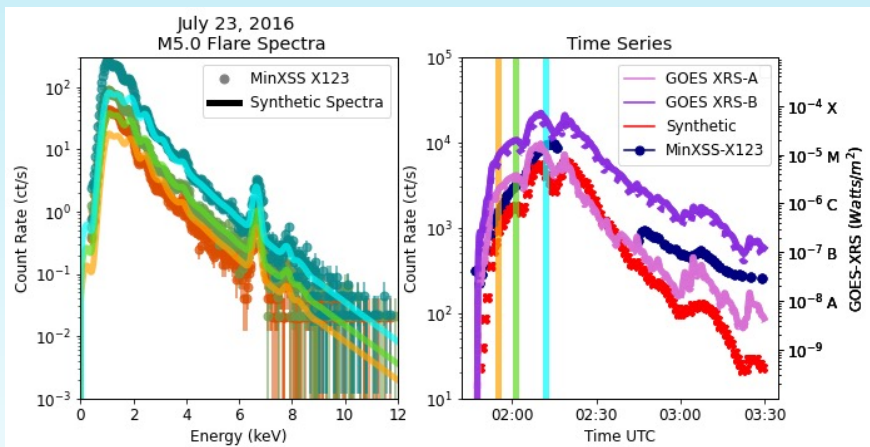
**Crisel Suarez**

Crisel Suarez is a Smithsonian Astrophysical Observatory predoctoral fellow at the Center for Astrophysics | Harvard & Smithsonian working with Dr. Christopher S. Moore and PhD Bridge fellow at Vanderbilt University working with Kelly Holley-Bockelmann. She is interested in characterizing the physical properties of solar flares in the solar corona by comparing different types of observations to numerical models. Her current research focuses on analyzing solar flare Soft X-ray and Extreme UV observations and using the hydrodynamic numerical simulations to better understand the emission, temperature and elemental abundances of the solar corona during flares.

## Quasi-Periodic Pulsation (QPP) in Soft X-ray Emission from the July 23, 2016 M5.0 flare

Crisel Suarez, Christopher S. Moore, Jeffrey W. Reep, Laura A. Hayes

Solar flares are the most energetic phenomena in our solar system, releasing up to  $10^{32}$  erg of stored magnetic energy. However, the detailed physics of the energy release and transport processes during a flare remains unknown. A key observational signature in the emission associated with hot flaring plasma is the presence of low-amplitude pulsations and oscillatory behavior known as quasi-periodic pulsations (QPP). These small flux variations could be driven by periodic or "bursty" energy releases from the coronal magnetic field. We present the analysis of the M5.0 flare from July 23, 2016, where we demonstrate the multithreaded model by comparing synthesized Soft X-ray (SXR) spectra and the observed spectra from Miniature X-ray Solar Spectrometer (MinXSS-1).



## Acknowledgments

I would like to acknowledge the support provided by AAS/SPD Thomas Metcalf Travel Award, National Aeronautics and Space Administration Heliosphysics Supporting Research Grant, (NASA- HSR 16611153), MinXSS NSF- Fis1 CubeSat mission is supported by NASA Grant NNX14AN84Gk, and Vanderbilt Bridge Program PhD Fellowship.