CAL POLY
Physics
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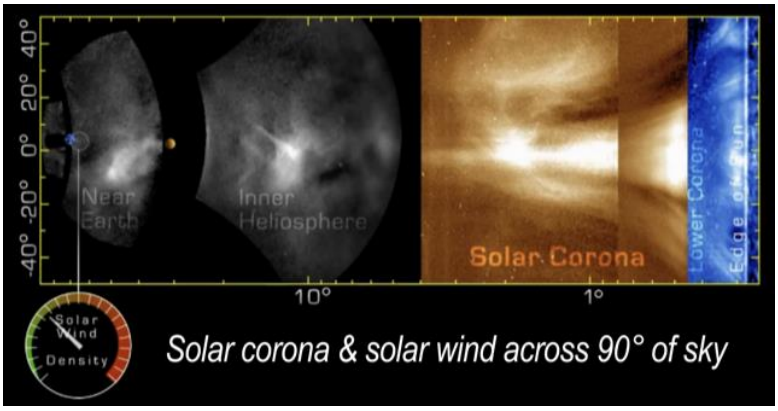
The Perils of Scientific Imaging



Dr. Craig DeForest

Solar Physicist
Southwest Research Institute
Boulder, Colorado

Thursday, February 20, 2025
11:10 am - 12:00 Noon
Building 33, Room 286
Pizza will be served!

Abstract: Image data analysis is central to modern science investigations. PUNCH, a space mission scheduled to launch February 2025, will image the solar corona and the solar wind itself. Interpreting scientific images is a lot harder than you might think. We're used to collecting images at the touch of a button or phone screen, and interpreting their contents at a glance, but appearances can be — and often are — deceiving. I'll introduce the PUNCH mission and then describe a few lessons from a career spent analyzing images of the Sun and the solar corona. We'll cover data collection (you don't understand your instrument), data interpretation (your eyes are lying to you), resampling (you're probably doing it wrong), and display (you're messing that up, too). The message: trust nothing — least of all your own eyes.

Bio: Dr. Craig DeForest has been working with solar physics, remote sensing data, and instrumentation since the late 20th century. A ne'er-do-well physics major in college, he wasn't sure how he'd specialize until he fell in with solar physicists in graduate school in 1989. He has worked on five orbital and deep-space missions, built and deployed multiple novel instruments, and pioneered image processing methods that are in common use today in solar physics. He directs a department of 25 scientists at the non-profit Southwest Research Institute and leads NASA's Polarimeter to UNify the Corona and Heliosphere (PUNCH) mission that is planned to launch in early 2025 from Vandenberg Space Force Base.