

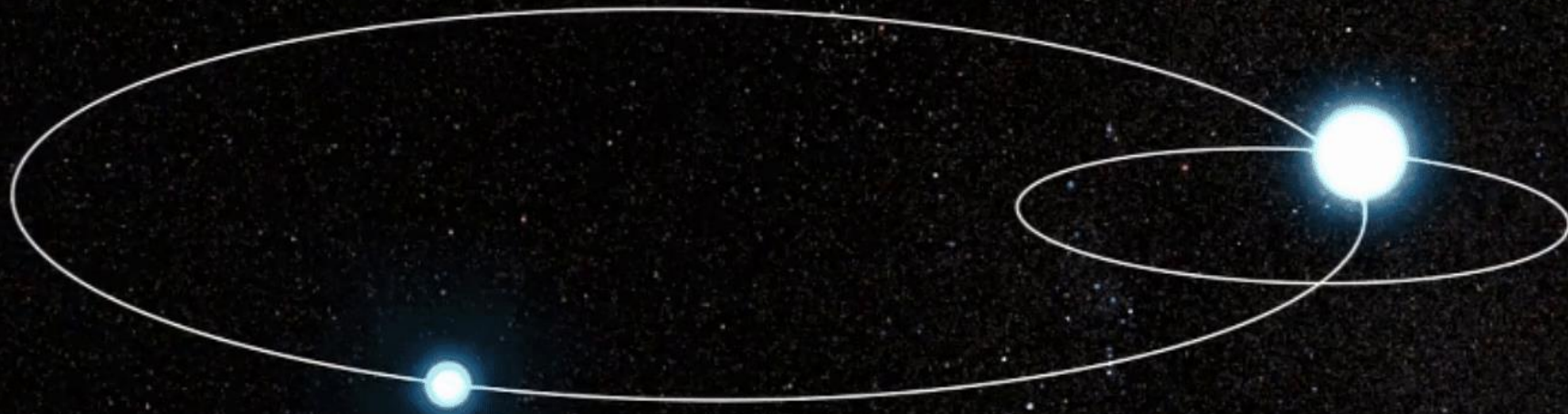


JWST Tracks the Expanding Dusty Fingerprints of a Massive Binary

Emma P. Lieb¹, Ryan M. Lau², Jennifer L. Hoffman¹, WRDustERS Team

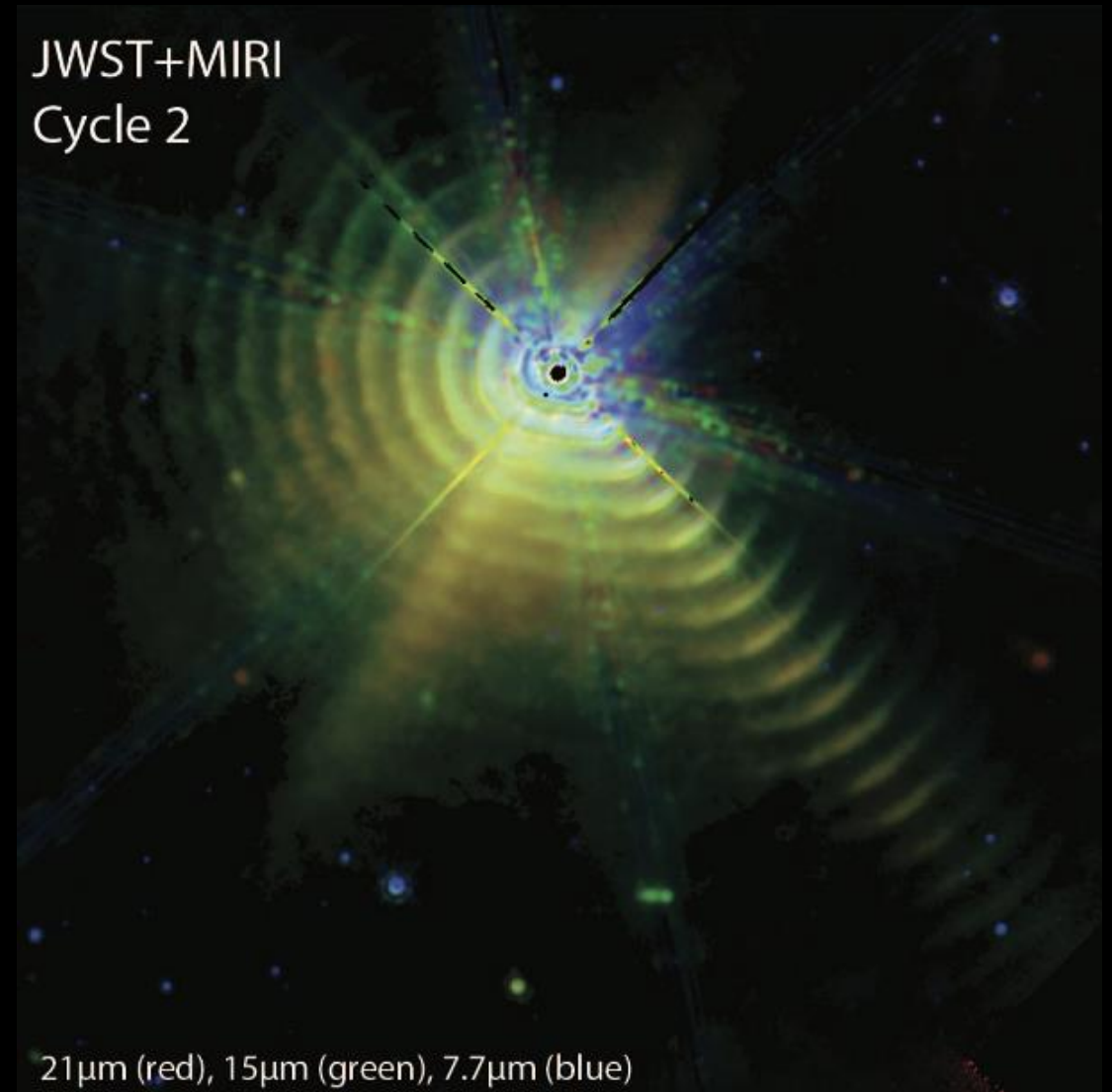
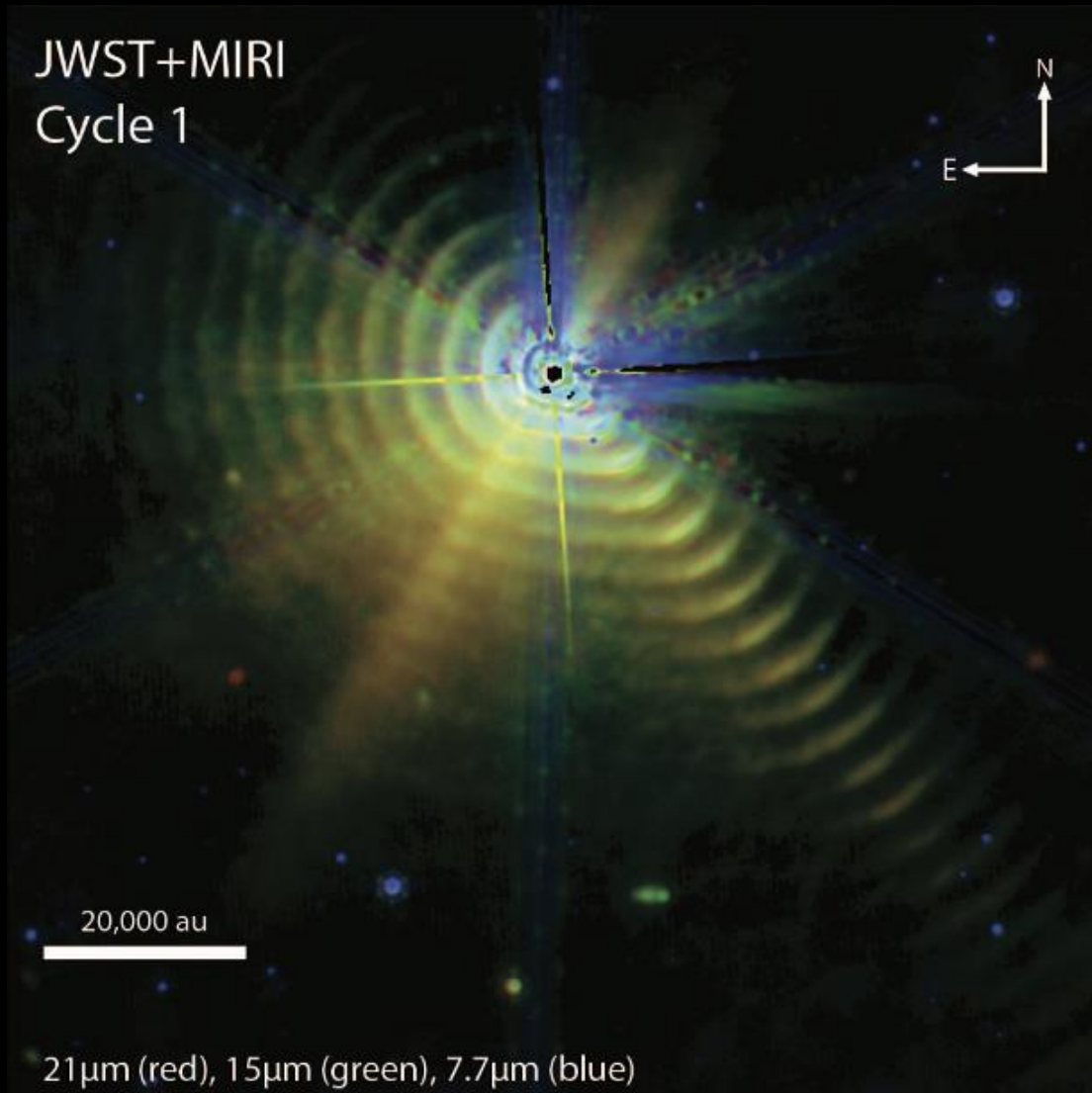
1. University of Denver, 2. NOIRLab

WR140

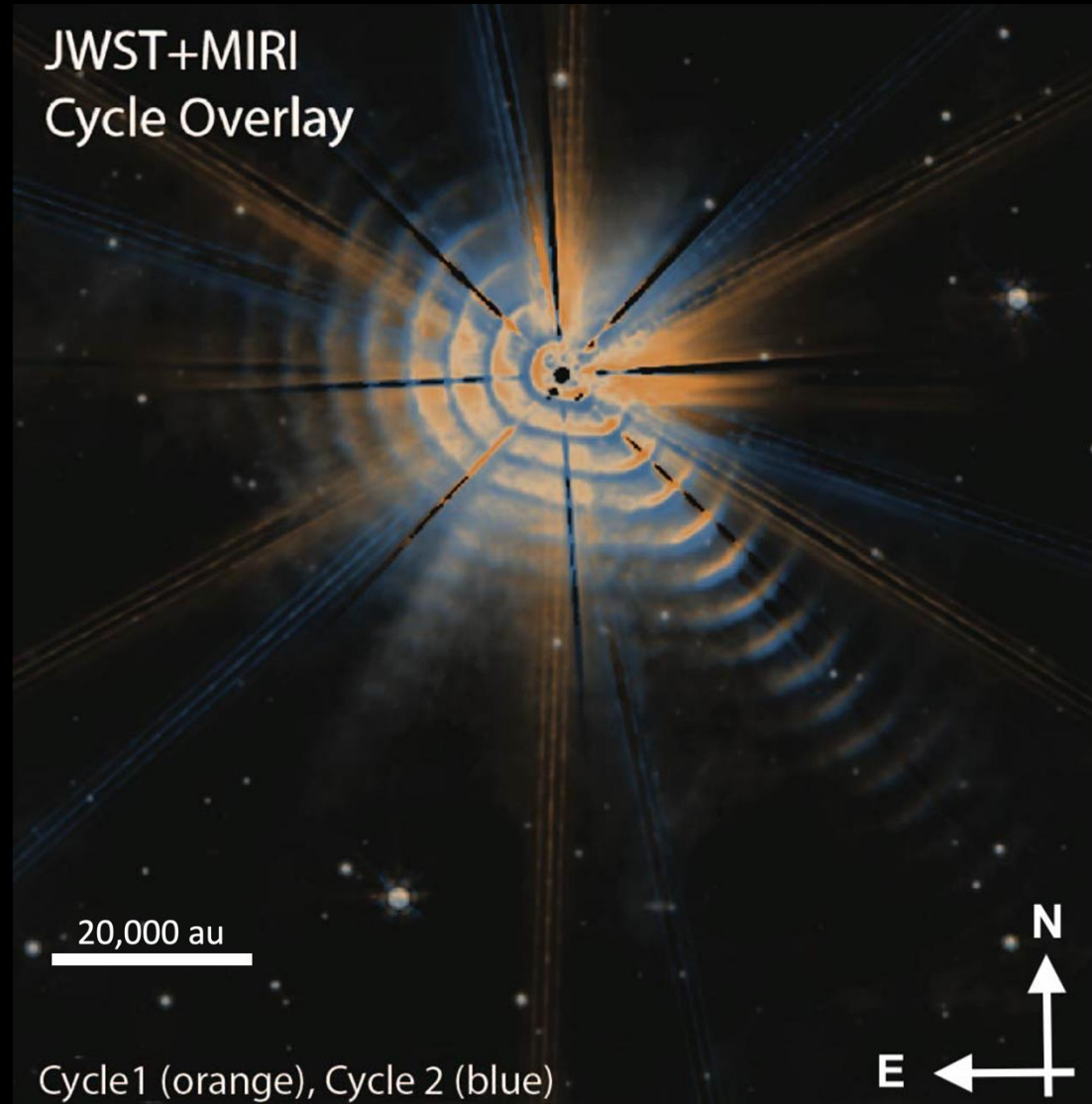


Orbital Period: 7.93 years
Eccentricity: 0.89

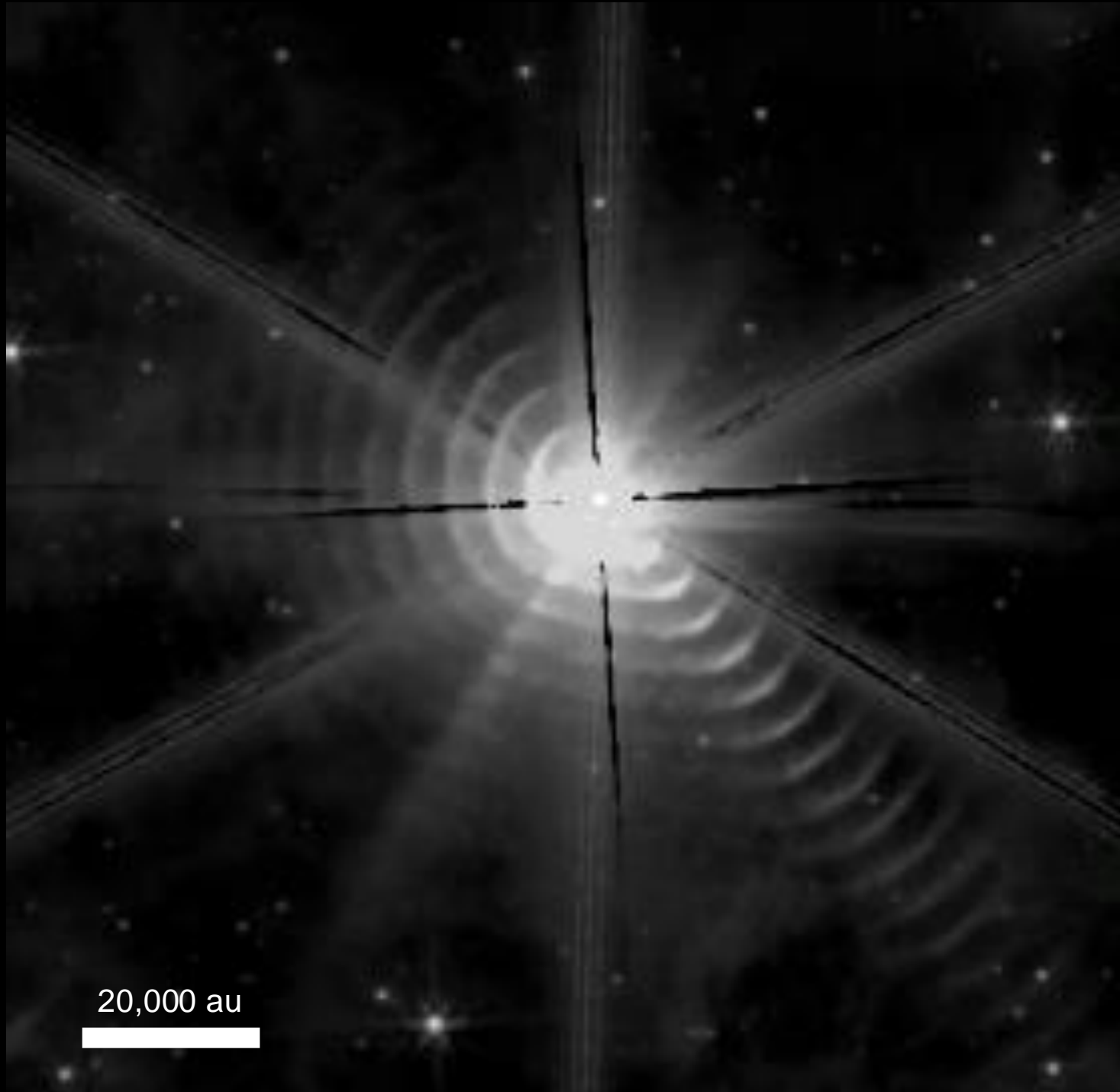
Two Observations, One Year Apart



Two Observations, One Year Apart



JWST Time Lapse

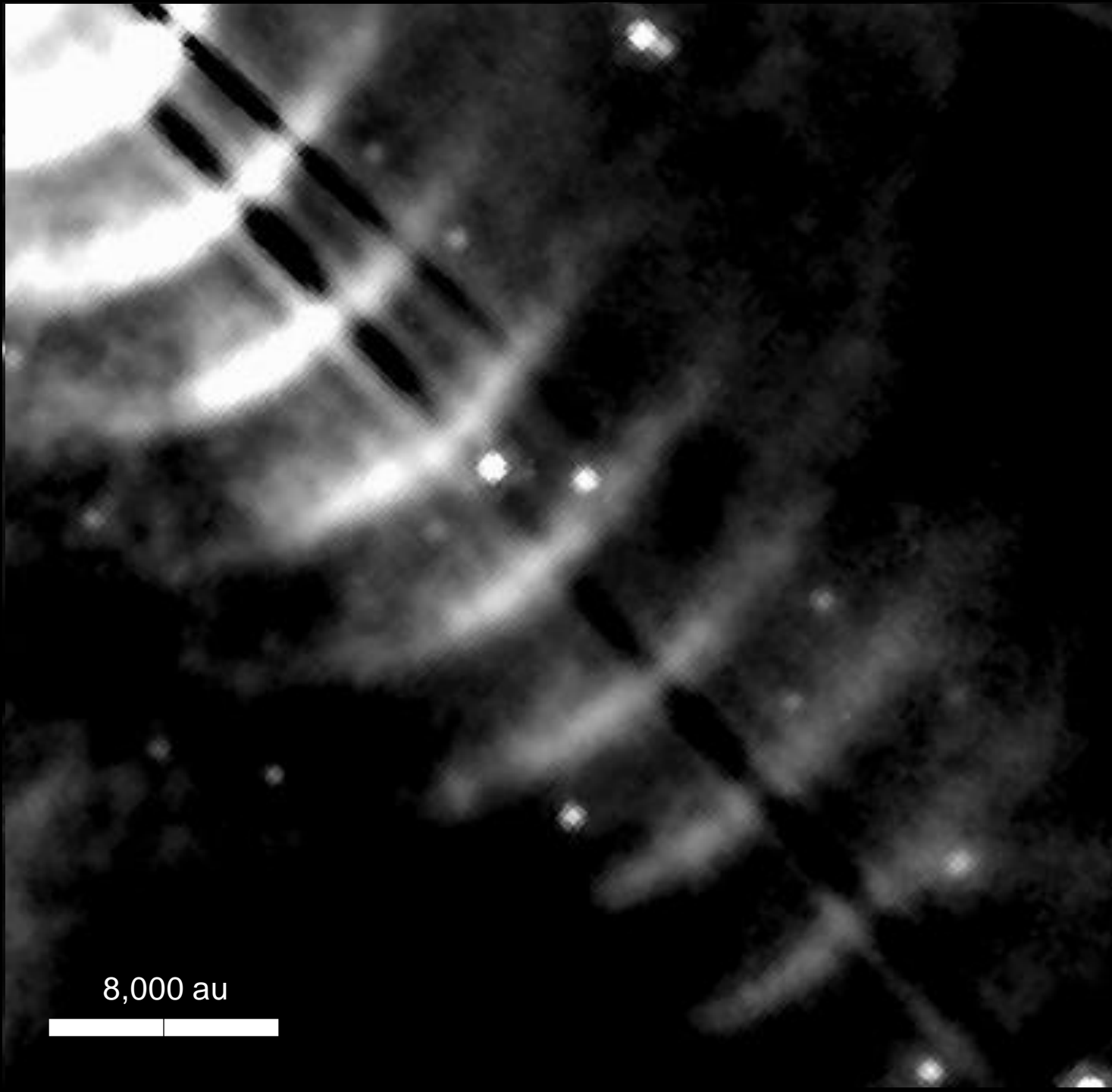


20,000 au

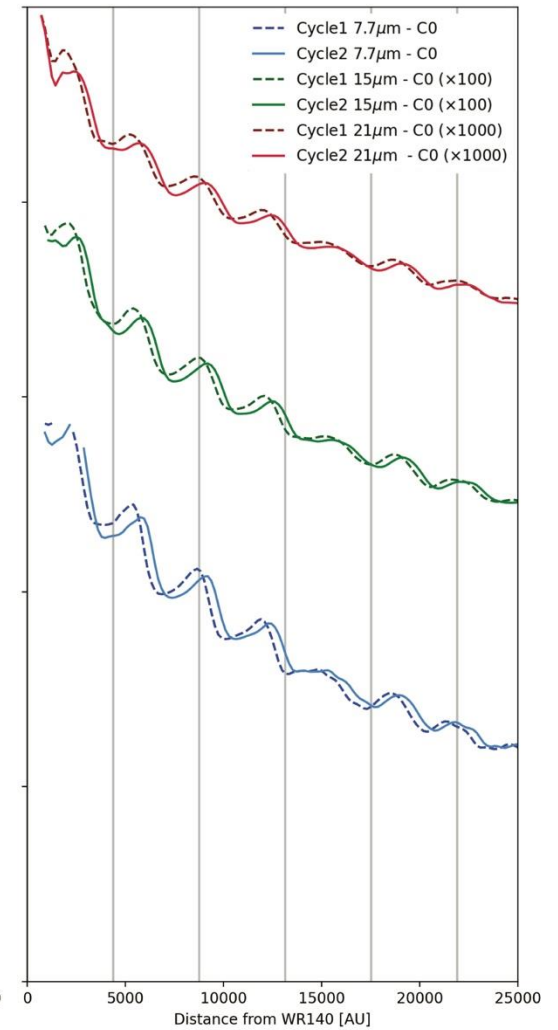
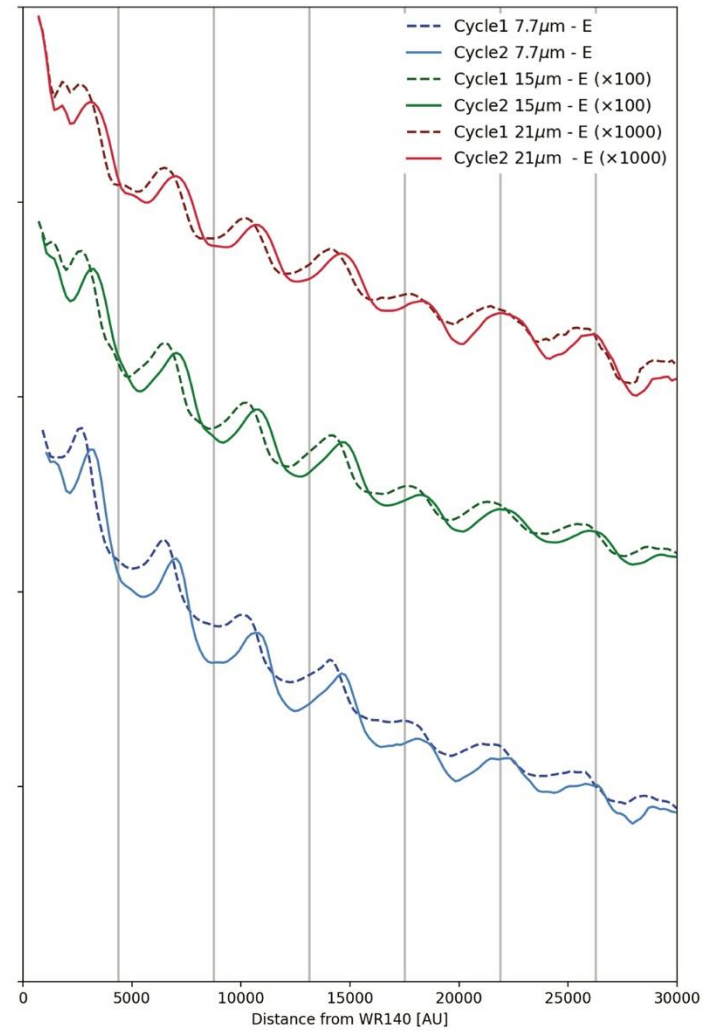
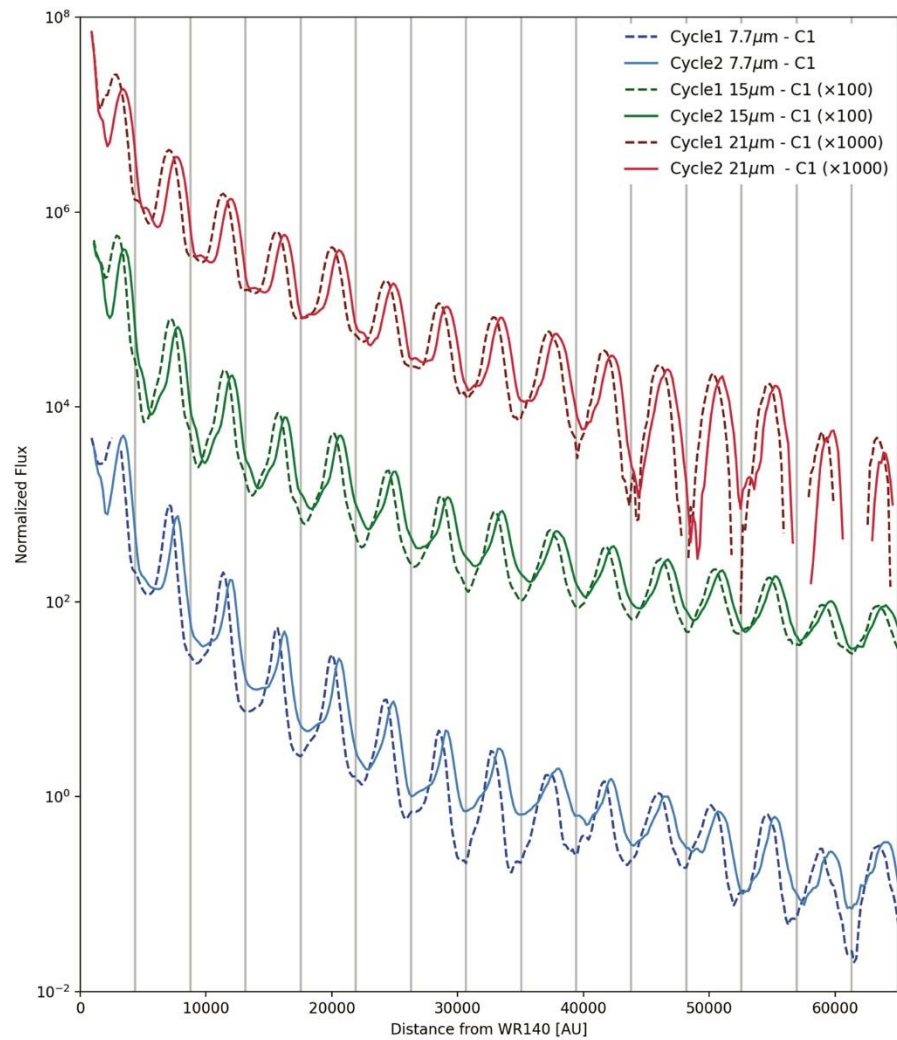


JWST Time Lapse

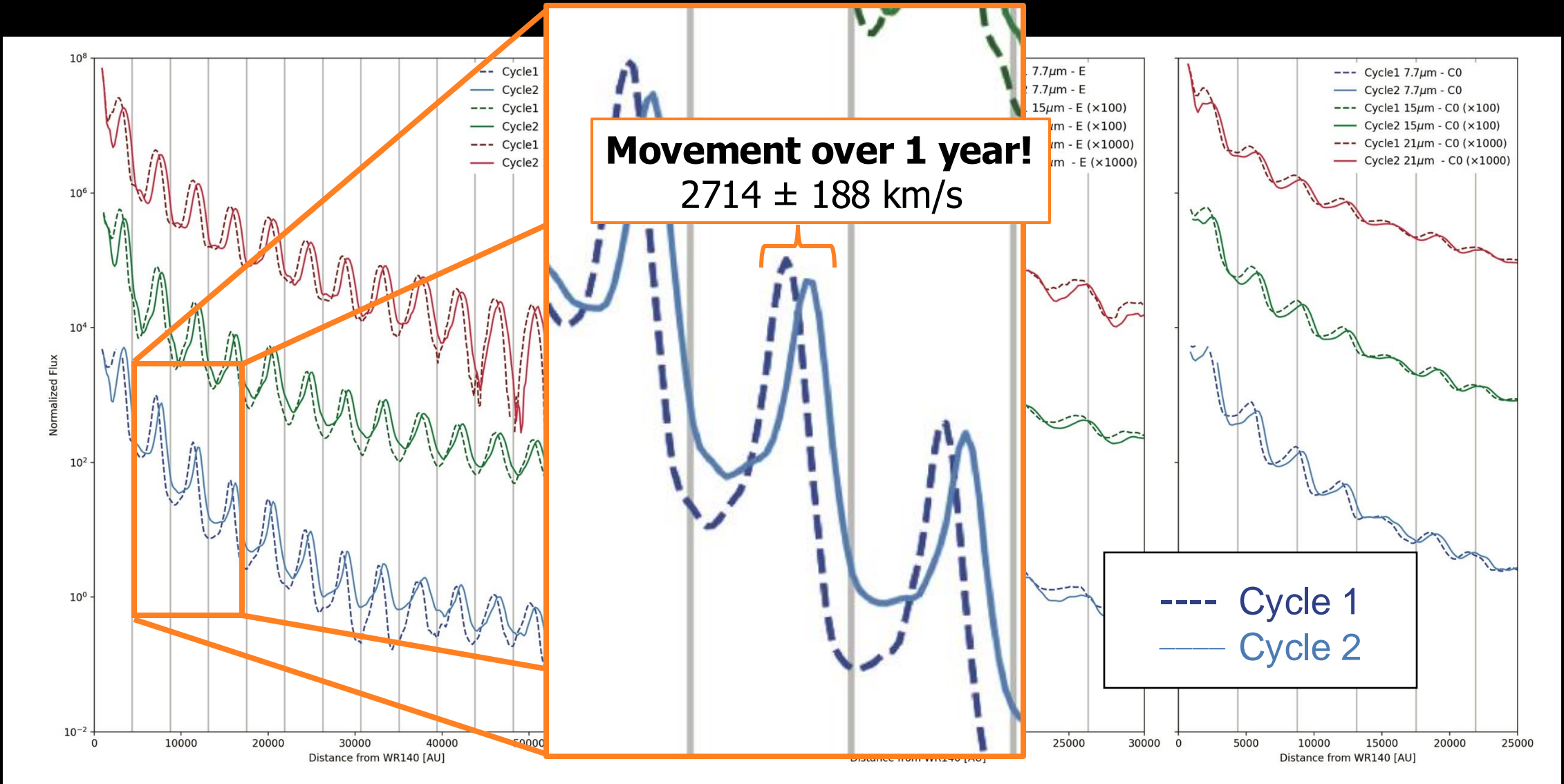
8,000 au



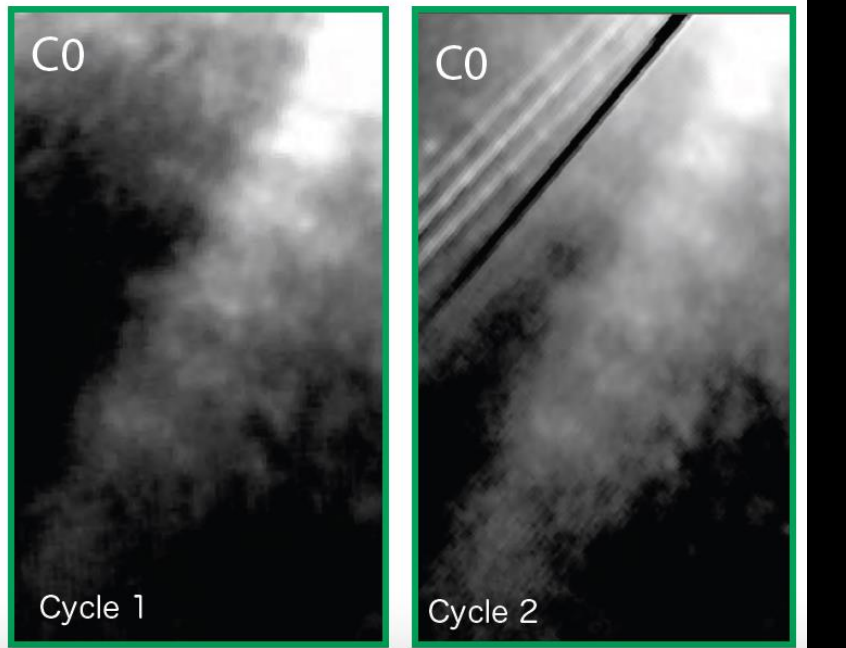
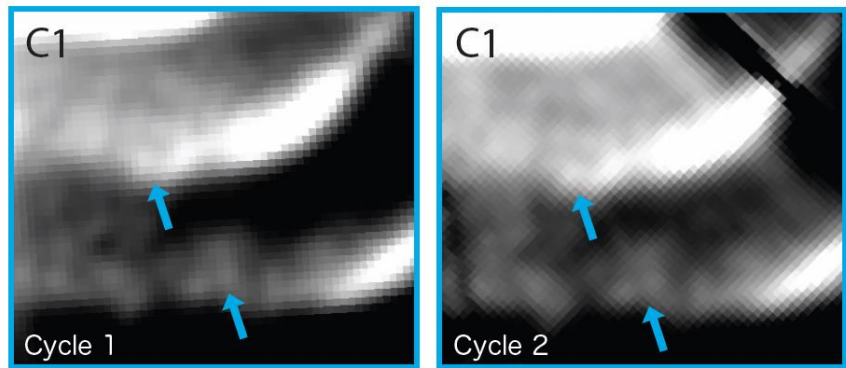
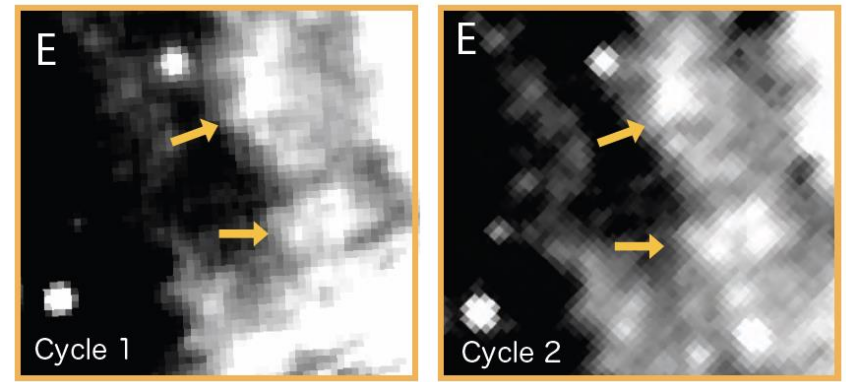
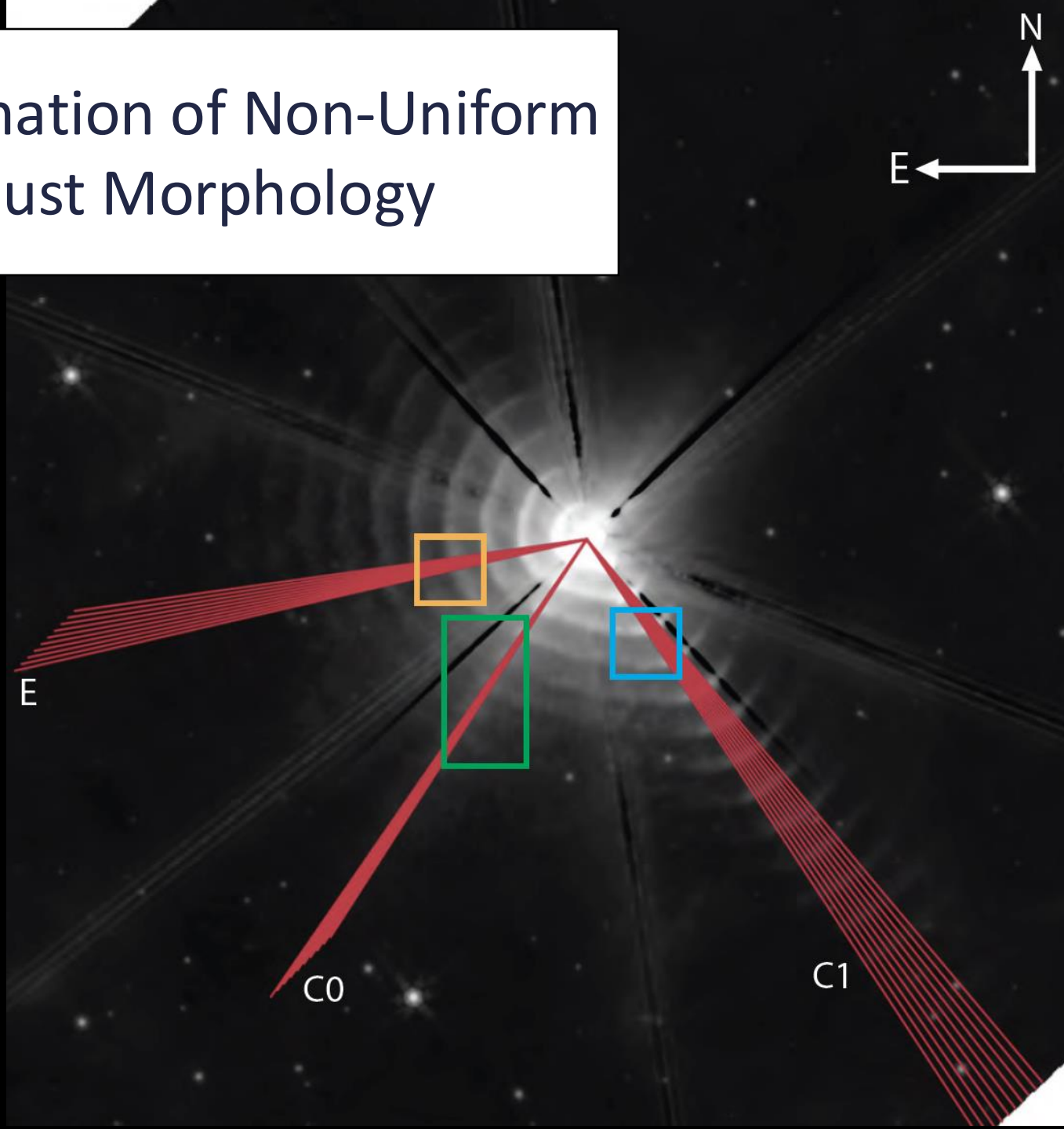
Measuring Proper Motions



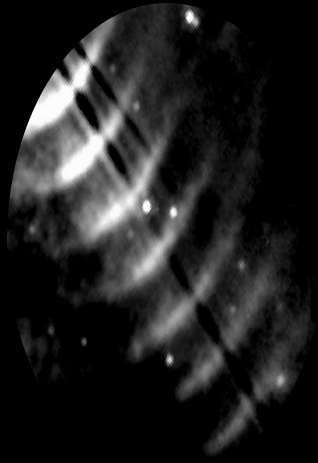
Measuring Proper Motions



Confirmation of Non-Uniform Dust Morphology



Major Takeaways



WR140's dust is expanding away at almost 1% the speed of light



Irregularities in the dust shells' morphology hints at underlying physical mechanisms for dust formation



WR140 should enrich its local environment with the necessary dust for star and planet formation