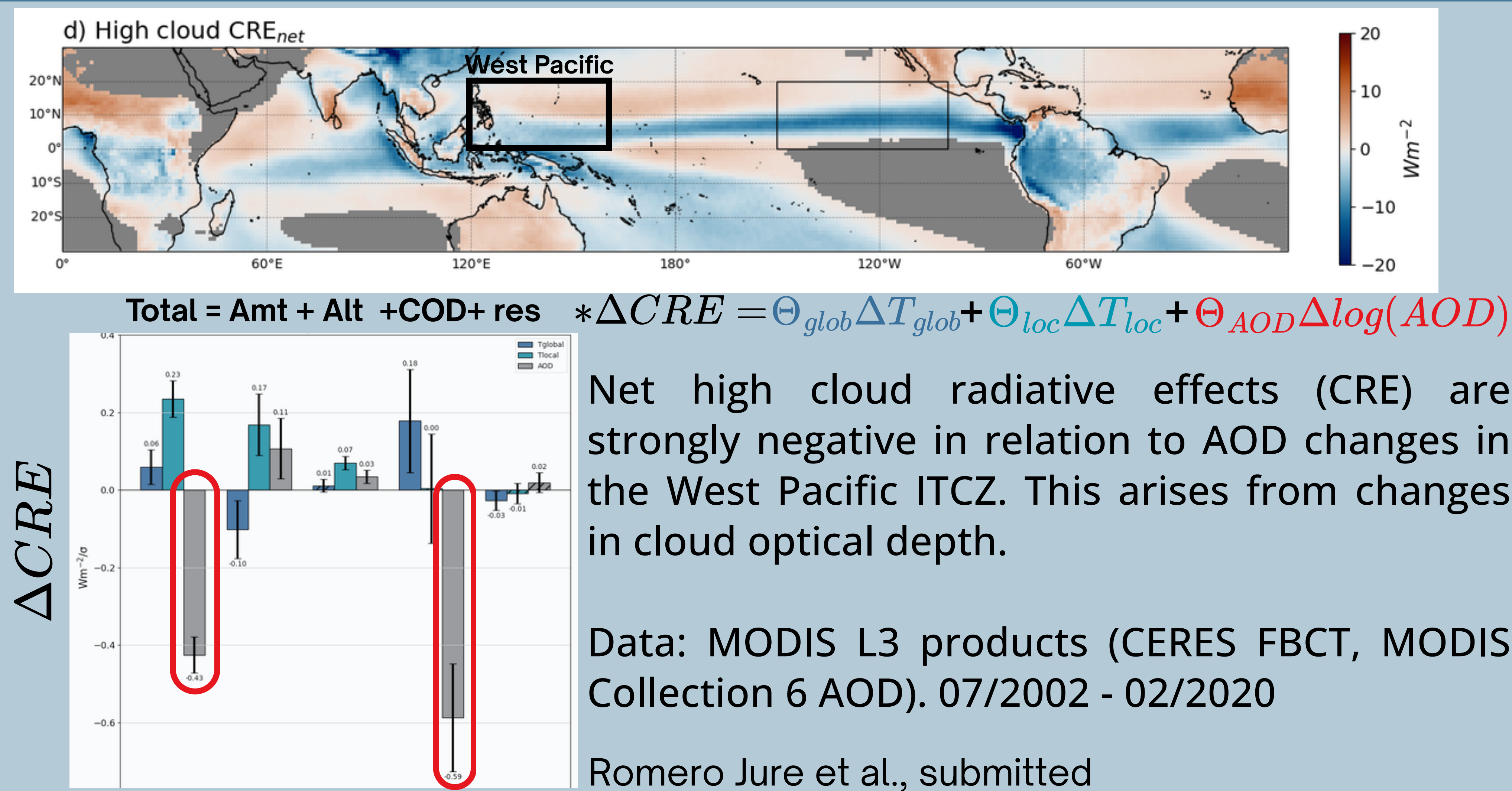


Can EarthCare provide a new perspective on their associations?

Paula Romero Jure, Declan Finney, Amanda Maycock

MOTIVATION



WHY EARTHCARE?

Can EarthCare help us understand the mechanisms behind these responses?

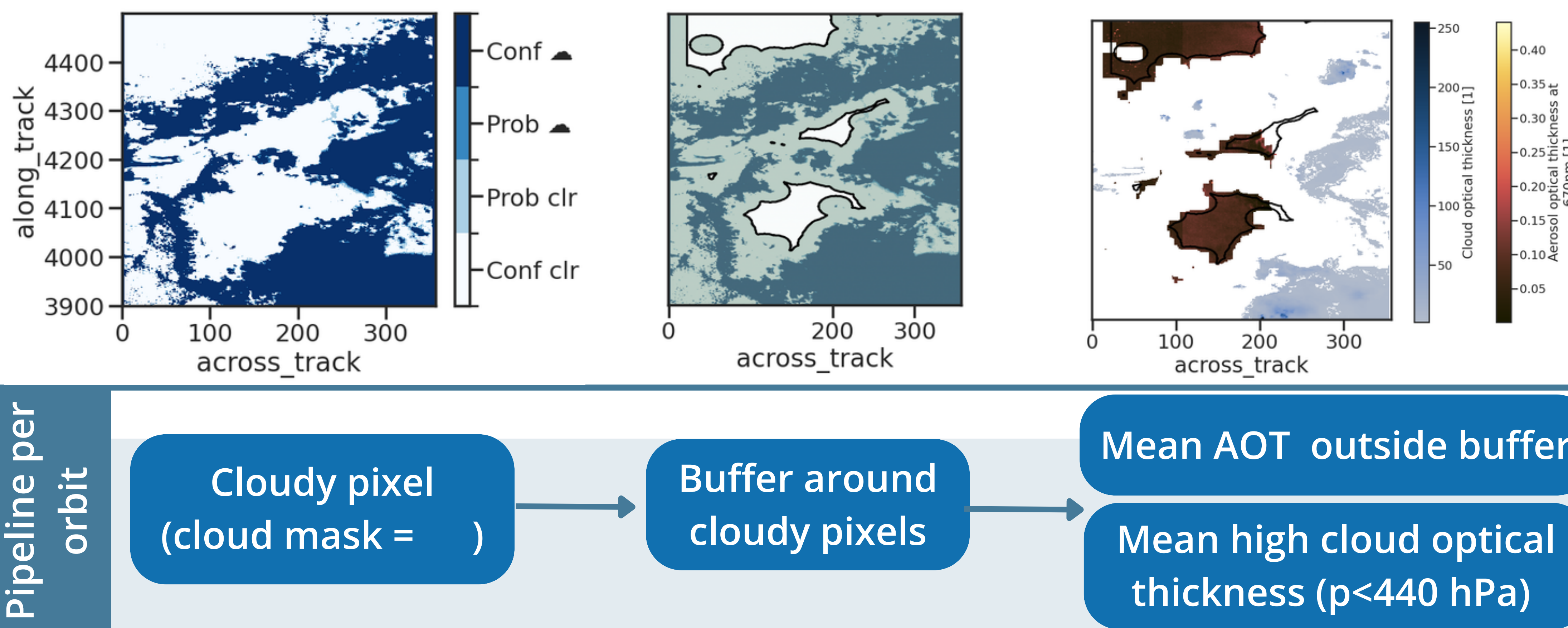
- Better resolution
- Possibility of a more complete picture by combining CPR, ATLID, BBR and MSI
- Hygroscopicity in AOT? → we have a chance to assess this in MSI

Products used

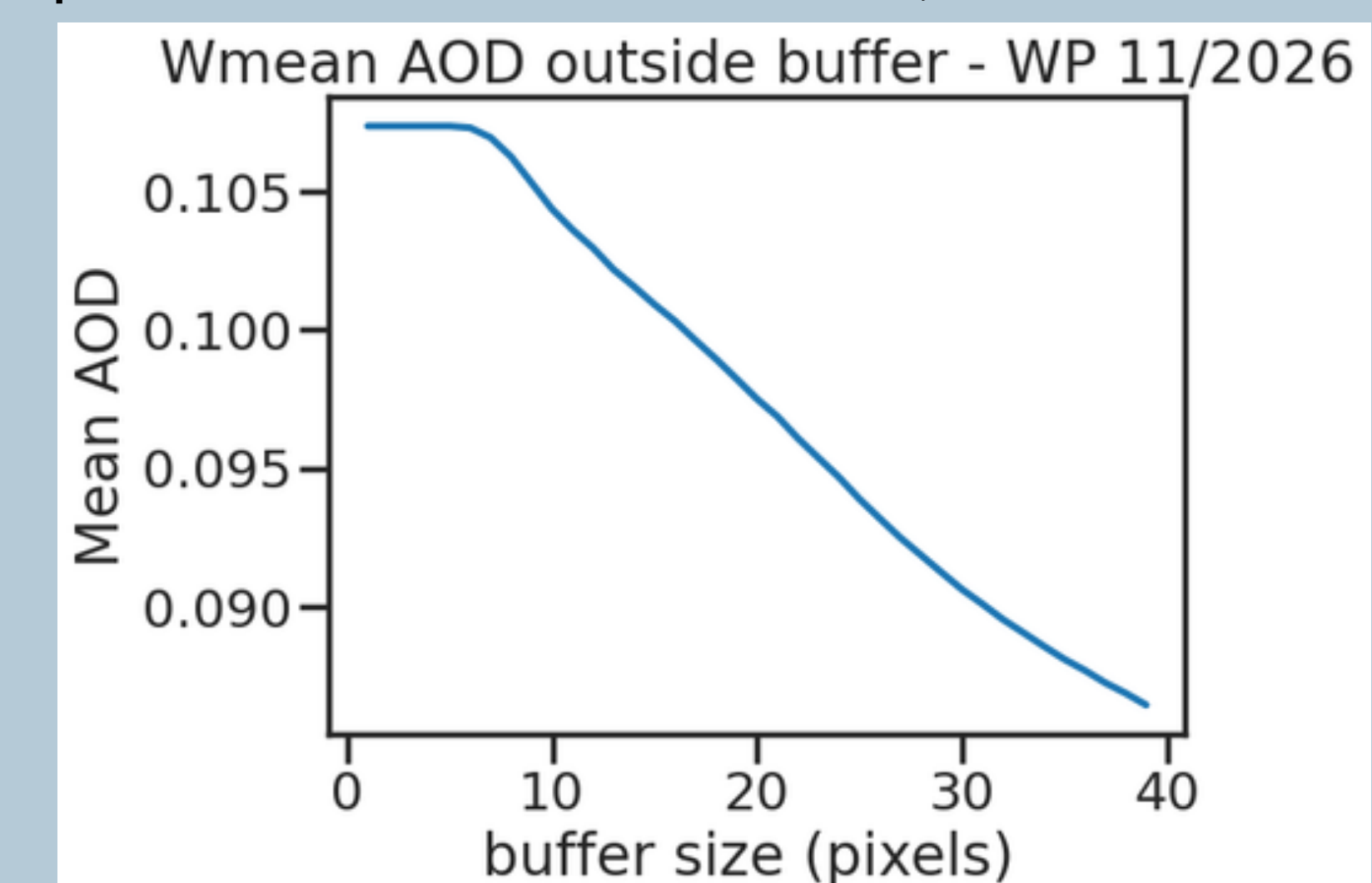
- MSI CM_ Orbits that cross the West Pacific during daylight
- MSI COP
- MSI AOT (Frame E)

BUFFERING APPROACH

To address the question on the possible error introduced by hygroscopicity

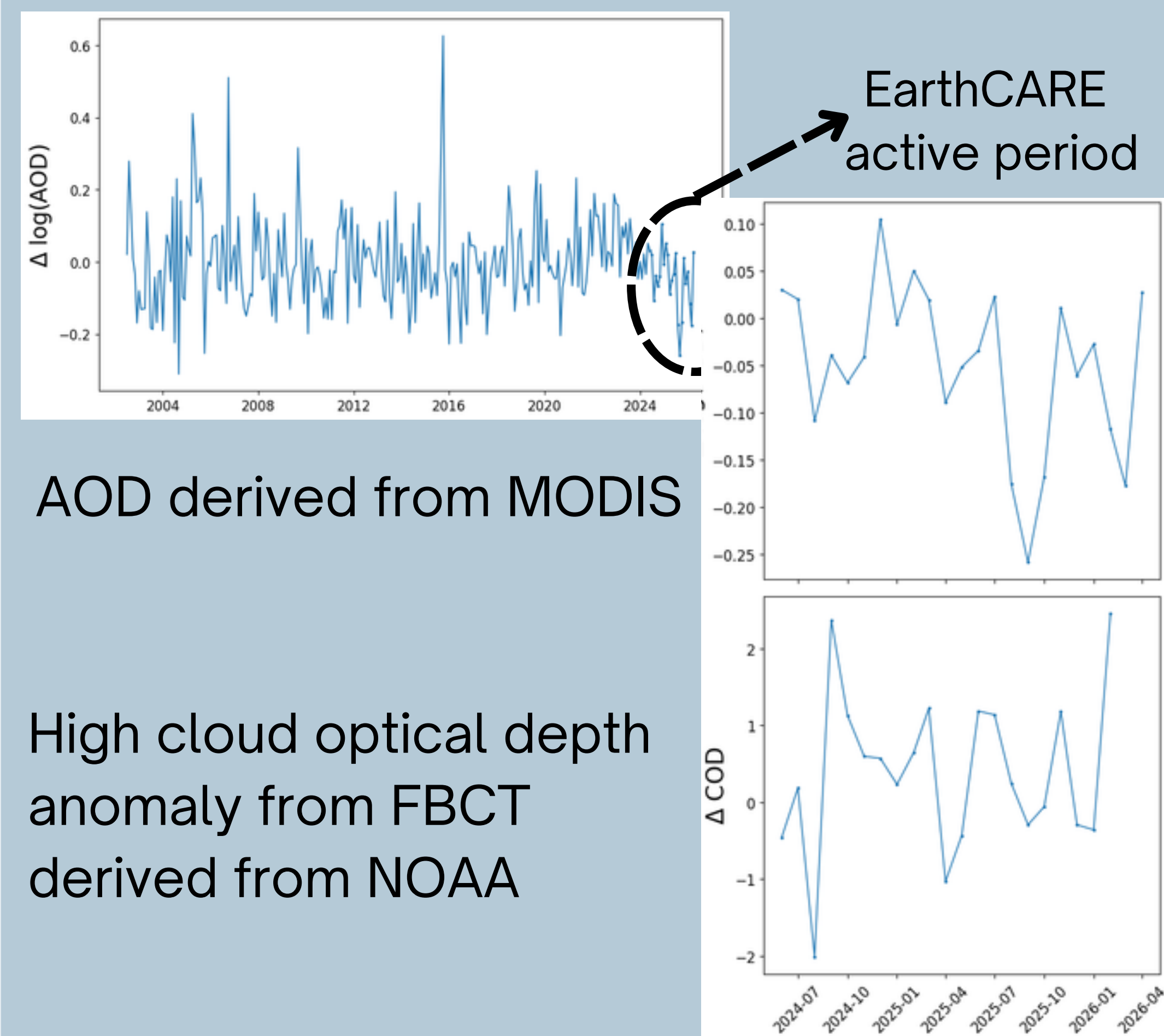


Choosing buffer width: 15 km (30 pixels) (Christensen et al., 2017)

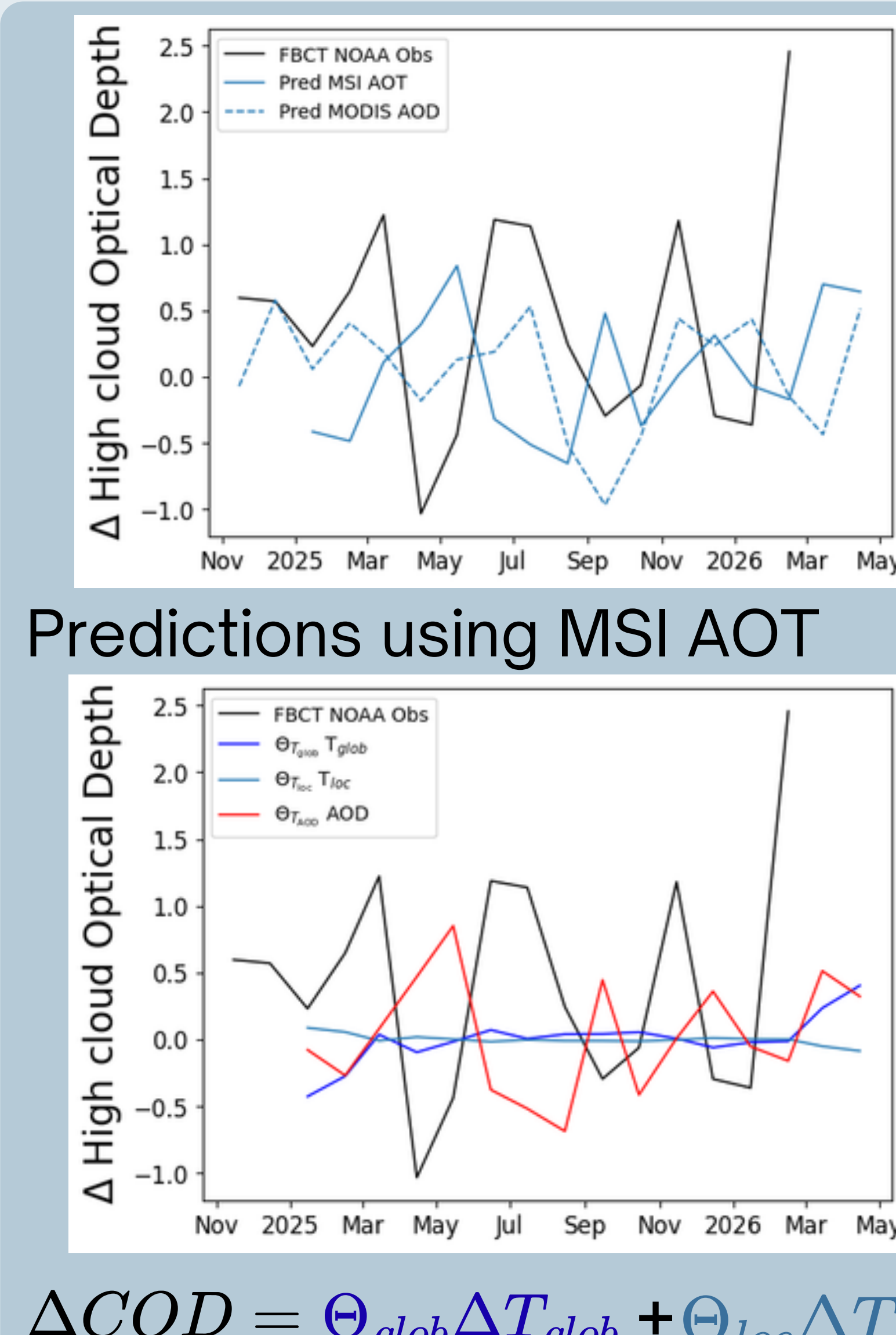


SELECTING INTERESTING MONTHS

Anomalies (= value - climatology) in observational period

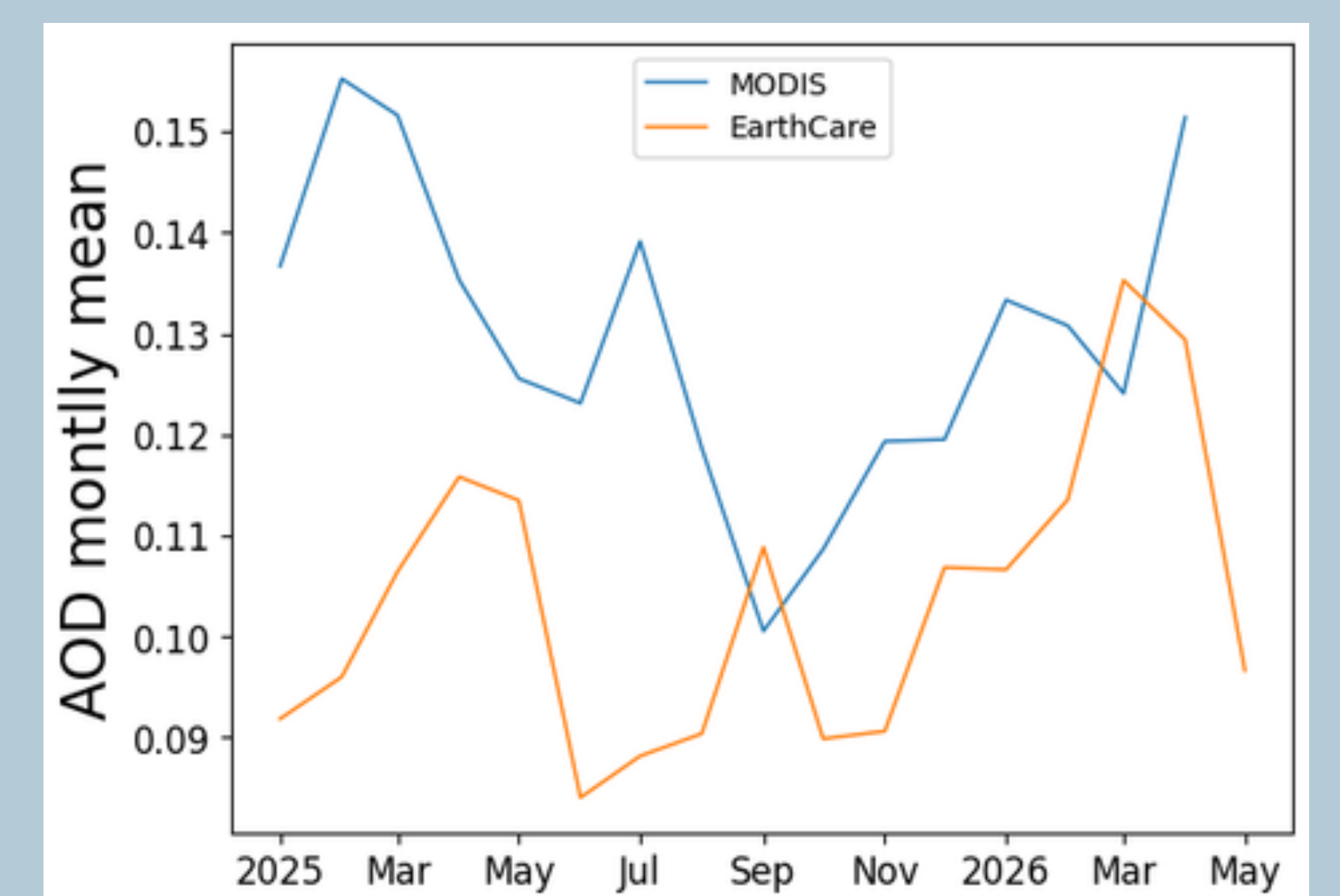


PREDICTIONS USING MLREG



MONTHLY MEANS

Monthly means in the WP: MODIS vs EarthCare MSI



References:

Christensen, M. W., et al. (2017). Unveiling aerosol–cloud interactions – Part 1: Cloud contamination in satellite products enhances the aerosol indirect forcing estimate. Atmospheric Chemistry and Physics, 17(21), 13151–13164.
 CERES FBCT: Sun, M., D. R. Doelling, N. G. Loeb, R. C. Scott, J. Wilkins, L. T. Nguyen, P. Mlynarczyk, 2022: Clouds and the Earth's Radiant Energy System (CERES) FluxByCldTyp Edition 4 Data Product, Journal of Atmospheric and Oceanic Technology, 39(3), 303–318. doi: 10.1175/JTECH-D-21-0029.1
 MODIS AOD: The Collection 6 MODIS aerosol products over land and ocean (Levy et al., 2013) were obtained from Earth Engine (Dataset MODIS 061 MYD08 M3), doi: 10.5067/MODIS/MYD08 M3.061