Comment on tc-2021-186
Anonymous Referee #2

Referee comment on "Relationships between Andean Glacier Ice-Core Dust Records and Amazon Basin Riverine Sediments" by Rafael S. dos Reis et al., The Cryosphere Discuss., https://doi.org/10.5194/tc-2021-186-RC2, 2021

This paper demonstrates correlations between ice-core dust records in Peru and Amazon Basin river sedimentology. Glacier melting in the tropical Andes and hydrology of the Amazon Basin is well studied in recent years. Even though the established correlations are convincing, a detailed discussion on the underlying mechanisms that lead to such correlation is missing. I recommend Major revisions.

I strongly recommend analyzing precipitation (snowfall) and snowmelt during the study period. How about albedo?

I understand from figure 3 that the dust concentration is higher particularly when both El Nino and warm-PDO coincide (1997/1998 and 2015/2016). I don't see it in the discussion.

I'm curious about the delays between the causes and effects. Examples: delay between PDO/TNA and glacier changes, delay between glacier melting and changes in sediments in the Amazon Basin. How these delays between causes and effects were considered while establishing correlations?

Minor comments

Line 180: PDO and TNA SST anomalies may influence precipitation (not indices).

When PDO and ENSO in phase, what would influence on snowline? Temperature? Precipitation?