Identifying skillful subseasonal precipitation forecasts over southwest Asia

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Motivation: Though highly desirable, current precipitation forecasts are not skillful past week 2

Research Questions

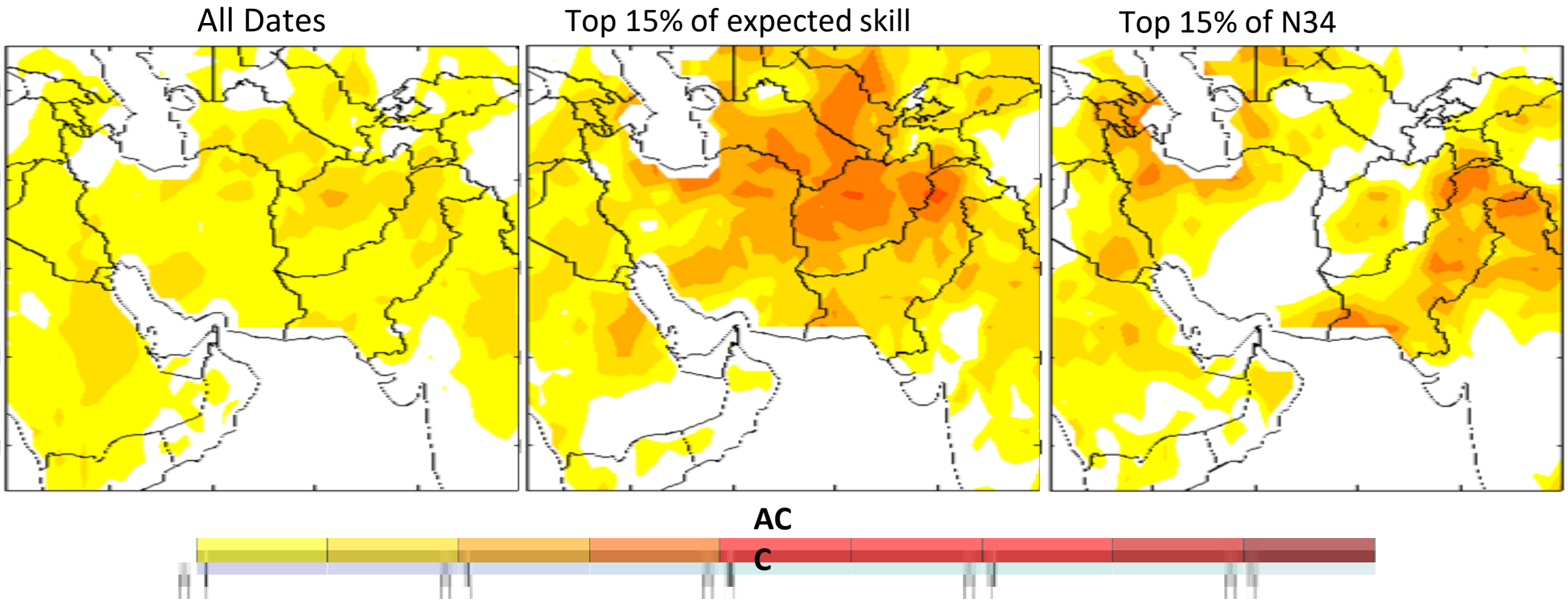
1. Can forecasts of opportunity be objectively identified for wintertime precipitation over southwest Asia?
2. What phenomena are associated with forecasts of opportunity?

Methods: Linear Inverse Model (LIM)

- Empirical dynamical model developed using JRA-55 Reanalysis and Climate Hazards Group InfraRed Precipitation with Station (CHIRPS) datasets
- Forecasts of opportunity are identified using a signal-to-noise ratio metric called **expected skill**

LIM Variables
Tropical Heating
200-hPa Streamfunction
2-m Temperature
CHIRPS Precipitation
Tropical SST

Weeks 3-4 ACC, CHIRPS Precipitation
JFM 1981-2018

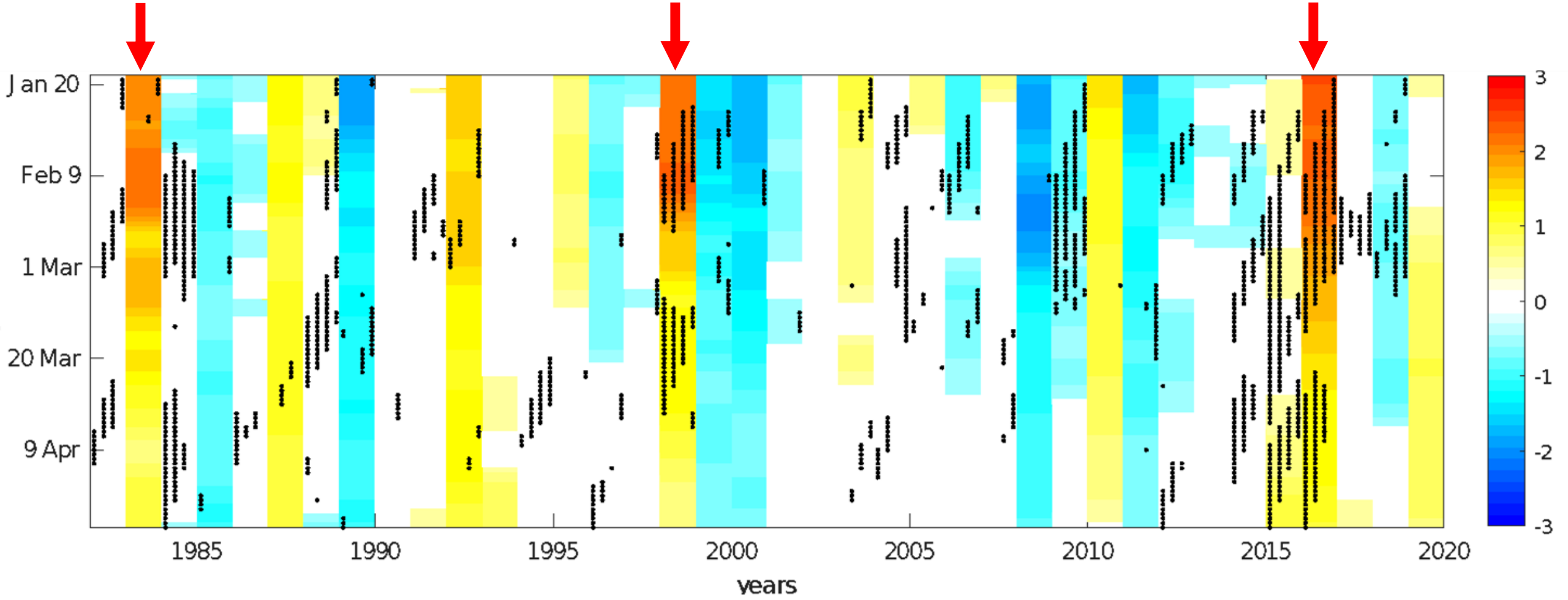


Forecasts of opportunity *can* be identified using expected skill, which selects more skillful forecasts than those identified using the Niño 3.4 index

Fill: n34 Index

Black dots: high expected skill dates

El Niño Events



Strong ENSO events *can* coincide with periods of elevated skill, but the timing is modulated by noise