Last Millennium Reanalysis: Sensitivity of Reconstructed Climate Fields to Enhanced Proxy Networks

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Data

- ★ **LMRv2.1*[5]**: PAGES2k [1]
- **PReSto2k**: PAGES2k + Iso2k [4] + CoralHydro2k [6]
- **PReSto2k-DOCU**: PAGES2k + Iso2k + CoralHydro2k + DOCU-CLIM [3]
- evolv2k AOD [8]

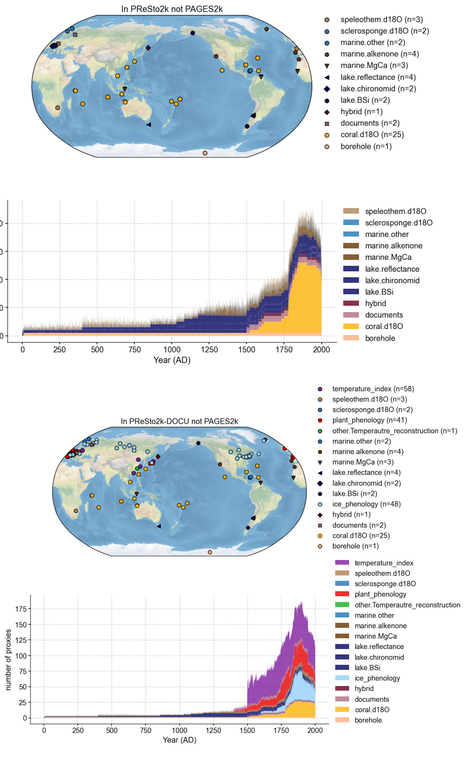
Methods

- Kolmogorov-Depth (KD) Test [4]
- Principal Component (EOF) analysis
- Superposed Epoch Analysis (SEA)
- **Tools**: *cfr* [2], xEOFs [9]

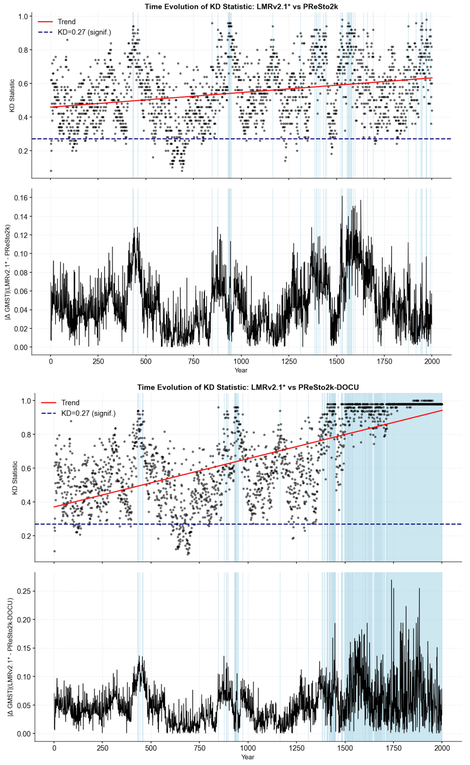
Key Takeaways

- **The KD statistic** [4] helps spotlight differences between reconstructions
- **Proxy type and location** matter at least as much as proxy count in shaping reconstruction differences, particularly where coverage is low.
- **EOFs reflect these differences**: high-KD years show larger PC amplitude shifts and spatial changes are dominant where new proxies are added
- **Volcanic SEA responses differ** across reconstructions in magnitude and pattern, also reflective of proxy additions
- **Enhanced proxy networks result in larger overall variability**; in particular, the volcanic response is stronger after introducing documentary data [3]

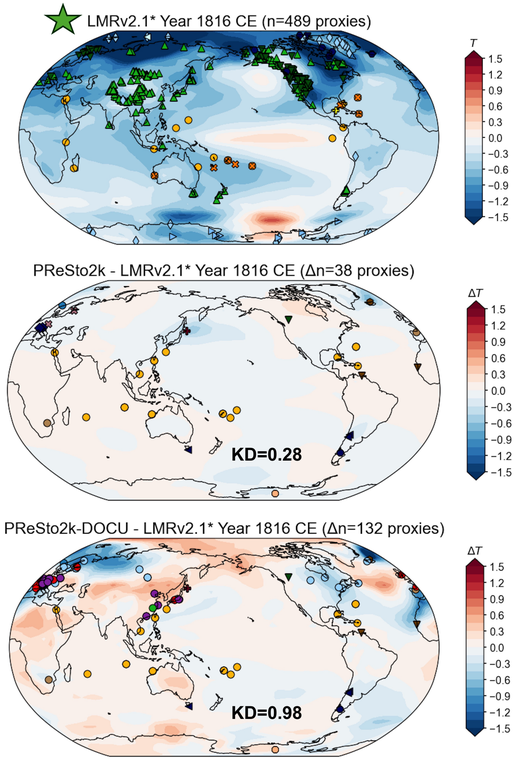
Proxy Databases



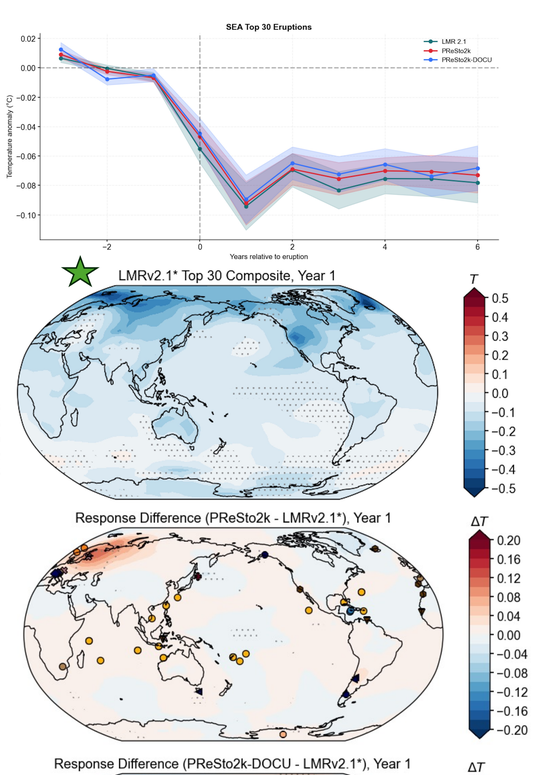
KD-Test



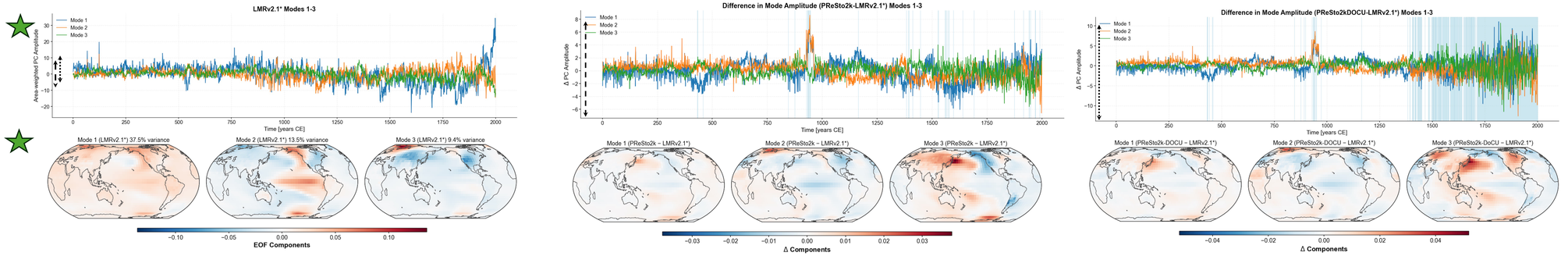
Tambora Response



SEA



EOF Analysis



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