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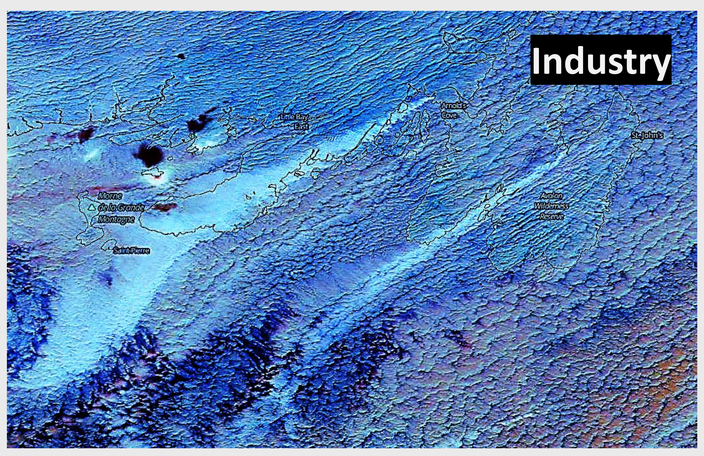
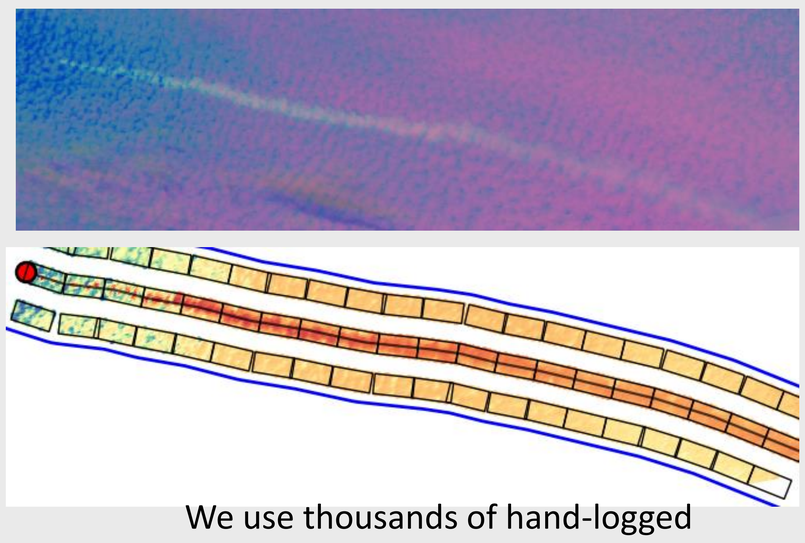
Underestimated increase in cloud water in aerosol-polluted cloud tracks





We use thousands of hand-logged

ship-track-like aerosol-polluted

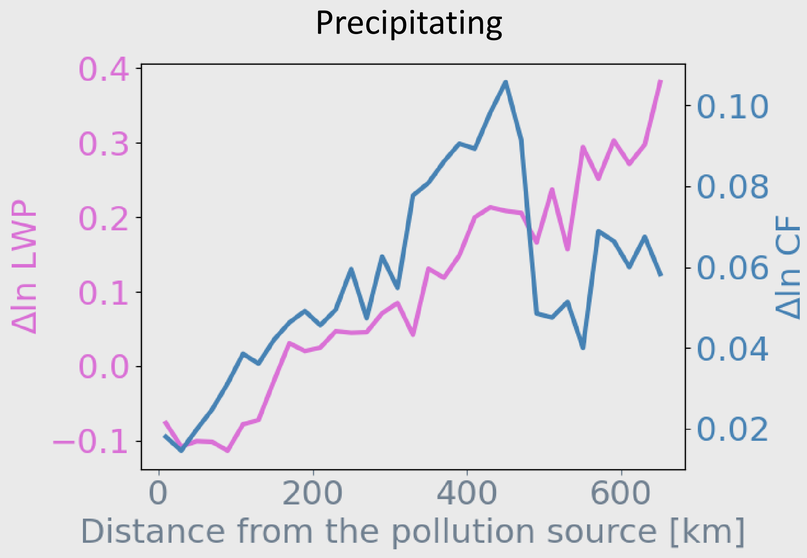
cloud tracks as opportunistic experiments

of aerosol impacts on clouds:

Comparison between aerosol-polluted and

nearby unpolluted cloud properties

using MODIS data

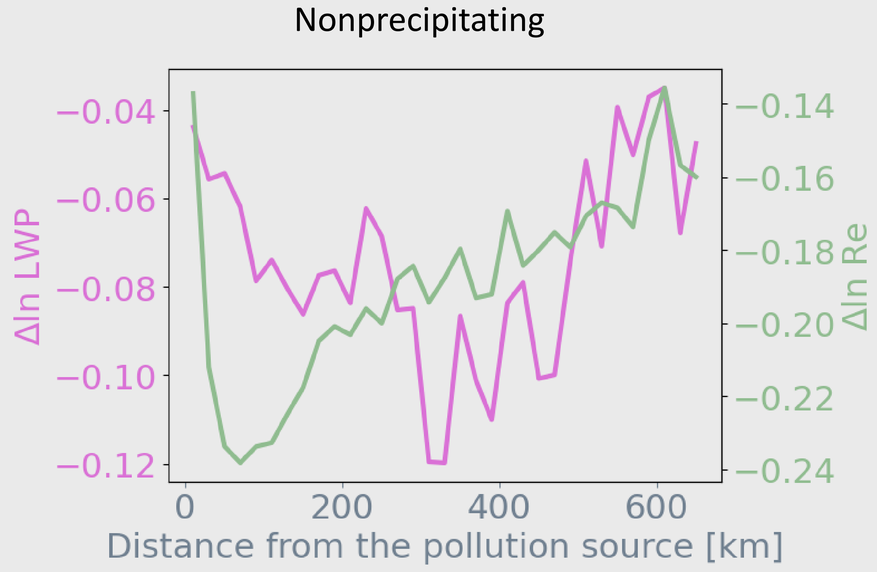


Physically consistent increases

in liquid water path (LWP)

and cloud fraction (CF)

in precipitating backgrounds



Unphysical near-instant decrease in LWP

in nonprecipitating backgrounds

(Re is cloud droplet effective radius)