



DADA: Data Assimilation for the Detection and Attribution of Weather and Climate-related Events

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We describe a new approach allowing for near real time, systematic causal attribution of weather and climate-related events. The method is purposely designed to allow its operability at meteorological centers by synergizing causal attribution with data treatments that are routinely performed when numerically forecasting the weather, thereby taking advantage of their powerful computational and observational capacity. Namely, we show that causal attribution can be obtained as a by-product of the so-called data assimilation procedures that are run on a daily basis to update the meteorological model with new atmospheric observations. We explain the theoretical rationale of this approach and sketch the most prominent features of a "data assimilation-based detection and attribution" (DADA) procedure. The proposal is illustrated in the context of the 3-variables Lorenz model. Several practical and theoretical research questions that need to be addressed to make the proposal readily operational within weather forecasting centers are finally laid out.