



UniversidadeVigo



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GAIA-Clim User Workshop

Gap types from the GAID

spatio-temporal coverage

vertical resolution

uncertainty budget and calibration

uncertainty in relation to comparator measures

missing parameters/auxiliary information

pure technical issues

governance

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Vertical resolution

- It is a transition layer
- Representation of exchange processes is a huge problem (AOGCMs, Lagrangian transport models,...)
- Strong gradients
- Fingerprint of climate change (vertical movement, extension of the tropical belt,...)
- Important for wave propagation (QBO, SSW's, Polar Vortex, seasonal predictability,...)
- Age of Air, B-D circulation

ECVs

- H_2O
- O_3
- CO_2
- CH_4

of course other basic ones: T, P,...

Examples:

- PREMIER Validation vs CMAM
 - stratosphere-troposphere exchange
 - tropical
 - the Indian monsoon
 - pyroconvection
 - long-range transport of air pollution
 - mesoscale dynamics including gravity waves
- 16 instruments vs. WACCM - O_3 and H_2O [Toohey et al. (2013) Characterizing sampling biases in the trace gas climatologies of the SPARC Data Initiative. J. Geophys. Res.]
 - O_3 monthly mean errors up to 10 % and annual means up to 20 %
 - H_2O smaller errors

Addressing these gaps

Radiosondes – GRUAN

Measurement campaigns in critical regions for critical events:
Aircrafts + radiosondes + lidars (using EUFAR infrastructure?)

THANK YOU!

