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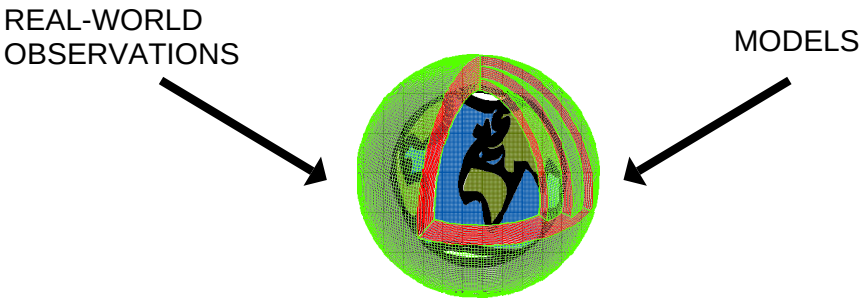
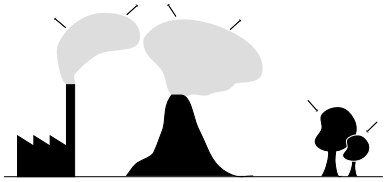
The Data Assimilation Research Centre

THEORY AND PRACTICE OF DATA ASSIMILATION



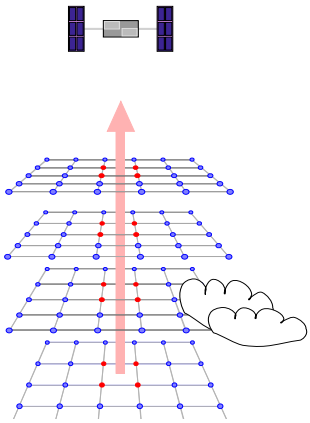
1. Infer quantities that cannot be easily measured directly

- Data assimilation to infer the state of the atmosphere, x(t).
- *Weak-constraint 4d-Var.* to infer sources and sinks of trace gases.



- Gravity wave drag diagnosis.

- Extracting information from cloudy satellite data.



2. Forecast error characterization

- Balance models of forecast error.

$$\left\langle \phi \vec{v} \quad \phi \vec{v} \right\rangle = 0$$

- Forecast error structure on convective scales.

- Multi-scale (wavelet) models of forecast error.