# Regional Representation

## Are local measurements useful for the evaluation of large-gridded global models ?

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# Scaling

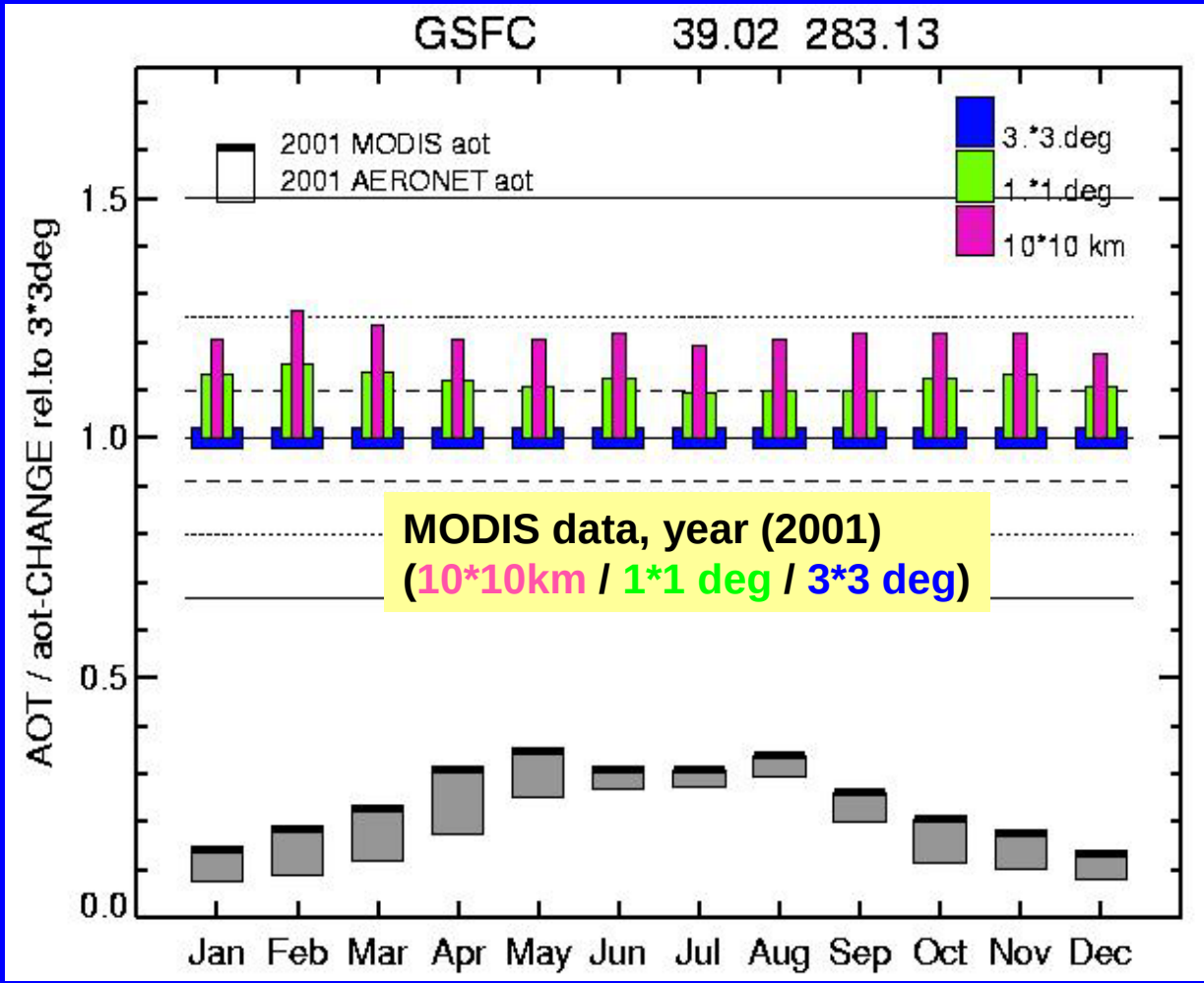
- **Issue:**
  - How good do local measurements characterize regional properties?
- **Goals:**
  - 1.choice: find sites that represent surrounding regions
  - 2.choice: find sites with a constant bias over the year
- **How?**
  - Use spatial information from satellites (satellite retrievals do not necessarily need to be accurate)
  - Compare averages at different spatial scales around each tested site

# Regional Representation (1)

- ***Satellite scaling indicates***
  - **urban polluted sites usually have larger optical depth than their regional average**

**⇨correction of bias required, if comparing to GCM data !**

***(1/1.2 for GSFC)***

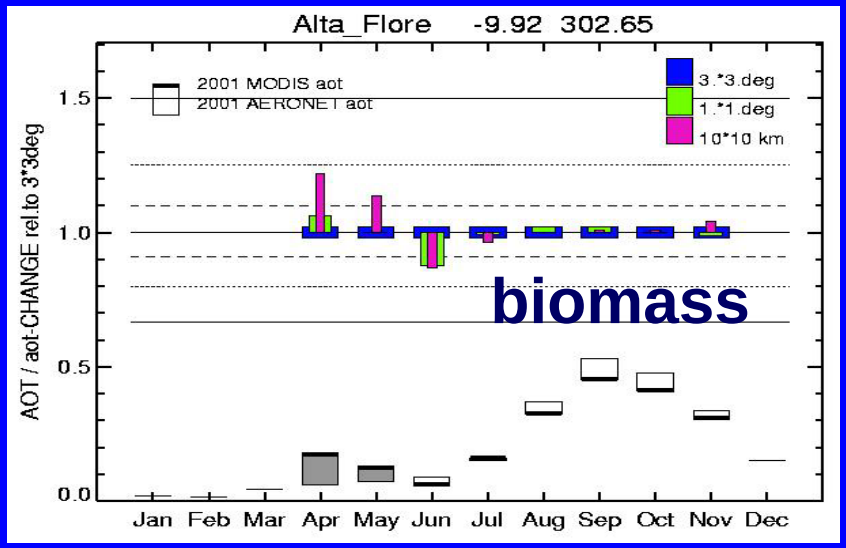


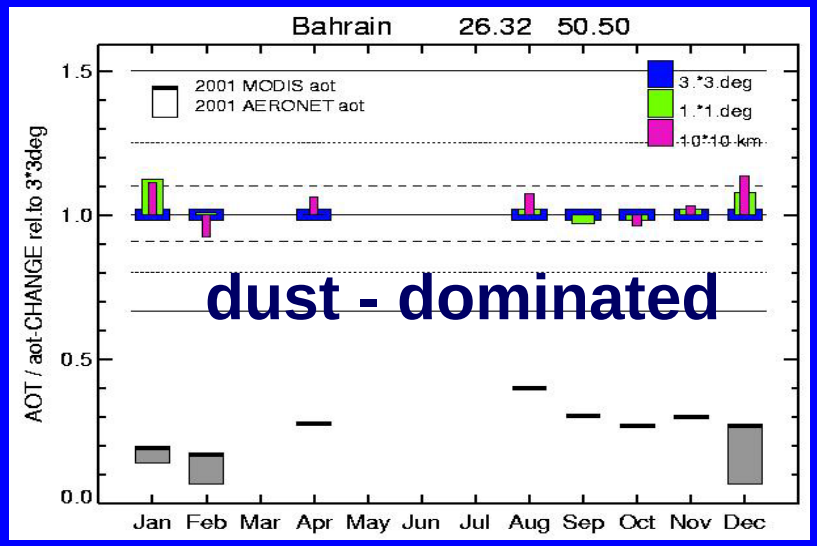
# Regional Representation (2)

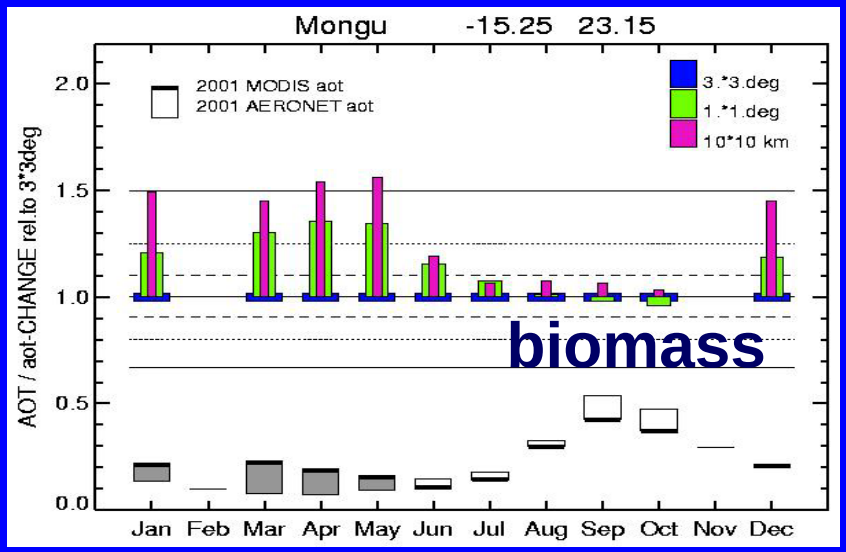
- *Satellite scaling indicates*
  - biomass and dust type sites usually represent regionally

    (… if aot is large > 0.3)

**MODIS data, year (2001)**
**(10*10km / 1*1 deg / 3*3 deg)**

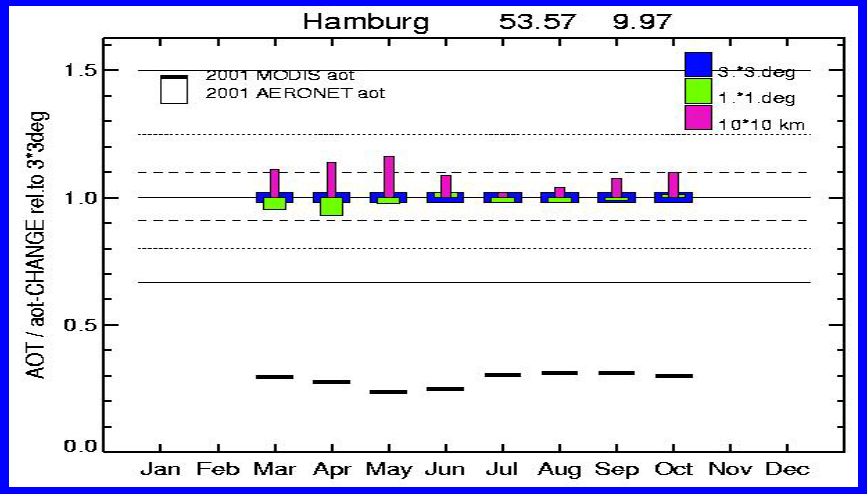


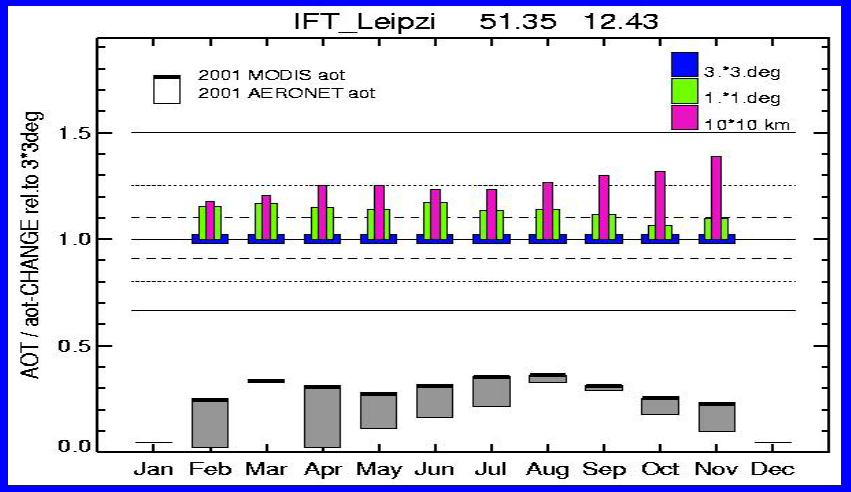



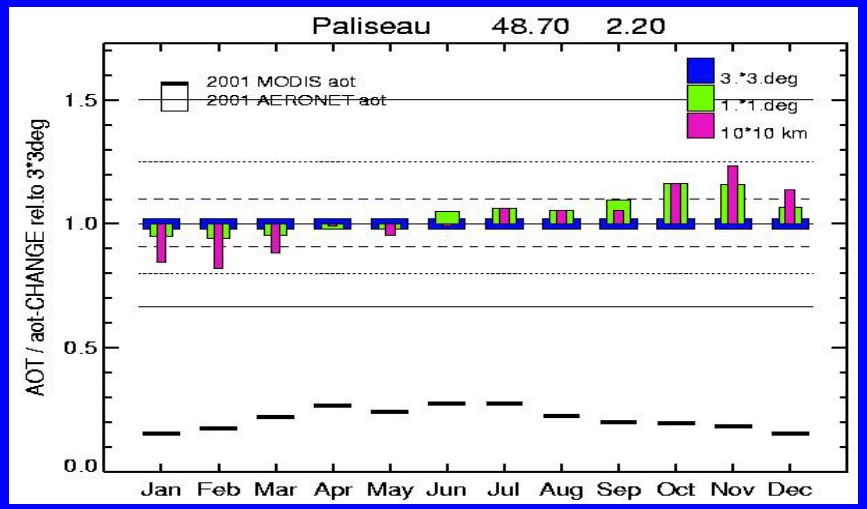



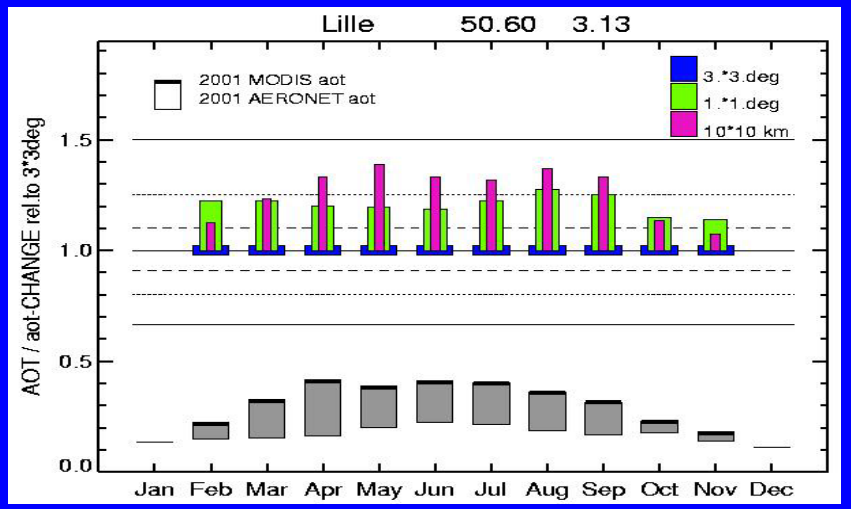
# Regional Representation (3)

## *sites of local interest*



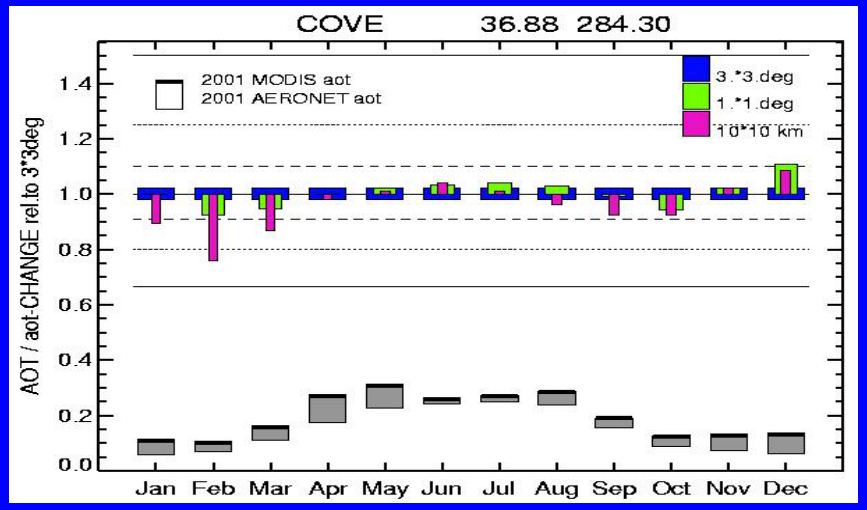



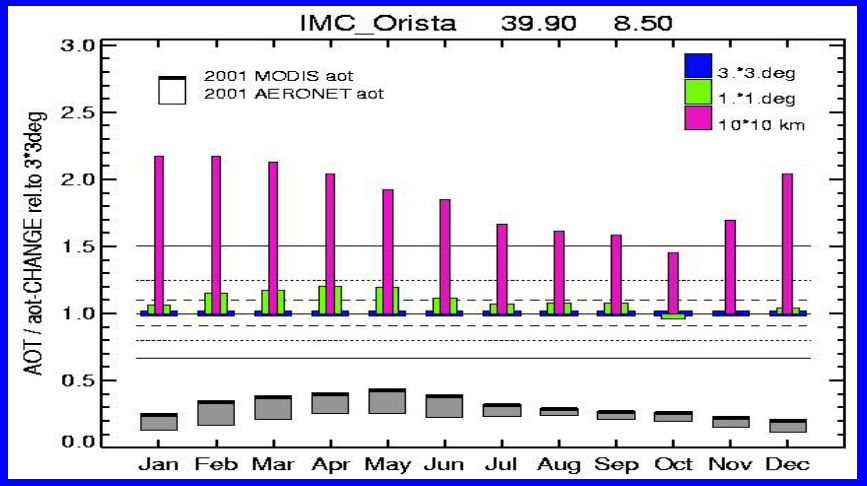

**these sites are not so bad**

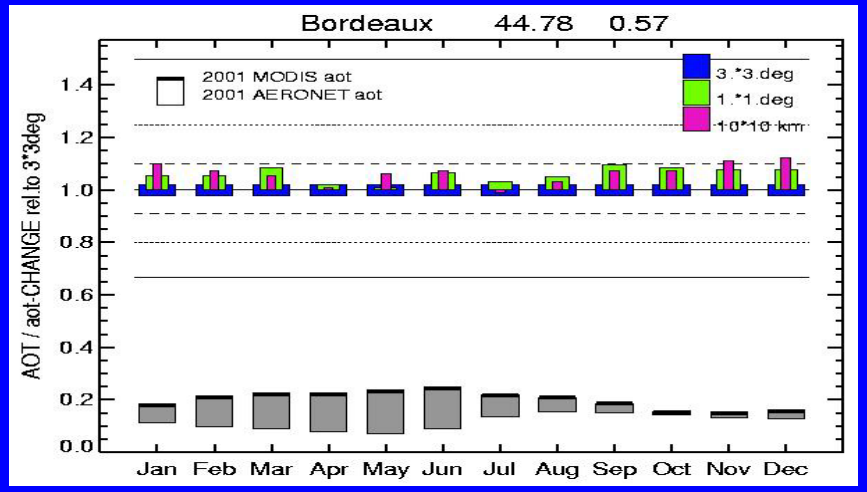
**complicated - not so good**

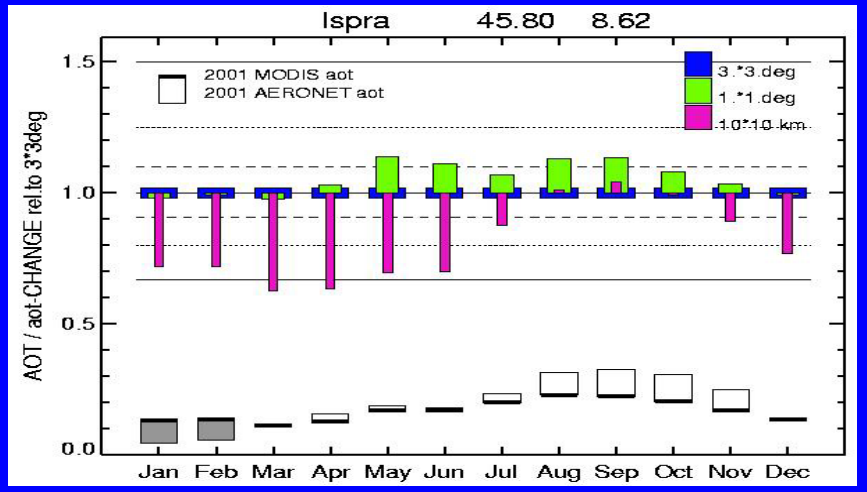
# Regional Representation (4)

## *the good and the bad*




**the good** **the bad**

# SUMMARY

- initial tests were just done for one (MODIS) year
  - statistics is often poor and data lack over dust regions
- tests will now be repeated based on 3 (MO/MI) years
  - better statistics (more years)
  - dust regions data (MISR)
- currently I am collecting lat/lon sites on which this scaling will be performed *- please forward your locations of interest to me to be included in the test*
- GOAL: identify the few good sites that are useful for model evaluations