

Sydney airshed AQ modelling intercomparison (WASPSS)

Elise-Andree Guerette¹, Steven Utembe², Kathryn Emmerson³, Alan Griffiths⁴,
Jeremy Silver², Lisa Tzu-Chi Chang⁵, Toan Trieu⁵, Ningbo Jiang⁵, Jenny Fisher¹,
Peter Rayner², Clare Murphy¹, Yvonne Scorgie⁵, Martin Cope³

¹Uni Wollongong ²Uni Melbourne ³CSIRO ⁴ANSTO ⁵NSW OEH



National Environmental Science Programme



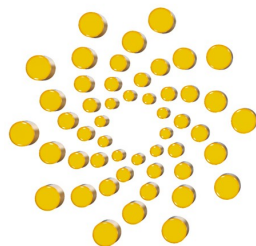
Office of
Environment
& Heritage



UNIVERSITY
OF WOLLONGONG
AUSTRALIA



THE UNIVERSITY OF
MELBOURNE



NCI



Australian Government

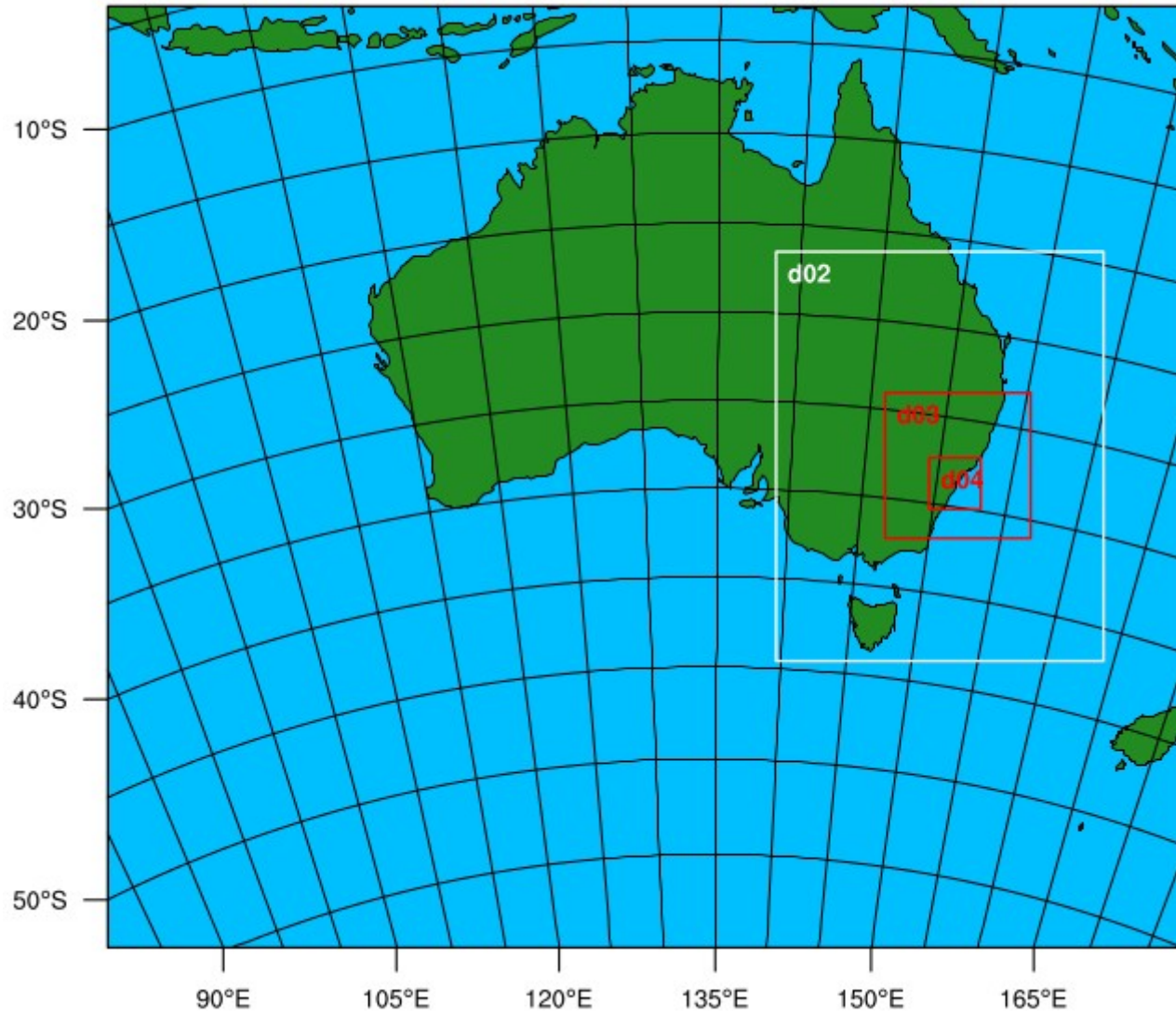
ansto

Australian Nuclear Science and Technology Organisation

Models

- WRF-CHEM (UoM)
 - Chemistry + aerosols
- CSIRO-CTM (CSIRO)
 - Chemistry + aerosols
- CSIRO-CTM (OEHL)
 - Chemistry + aerosols
- CMAQ + WRF (UoM)
 - Chemistry + aerosols + radon
- WRF-CHEM (ANSTO)
 - Radon

Study area

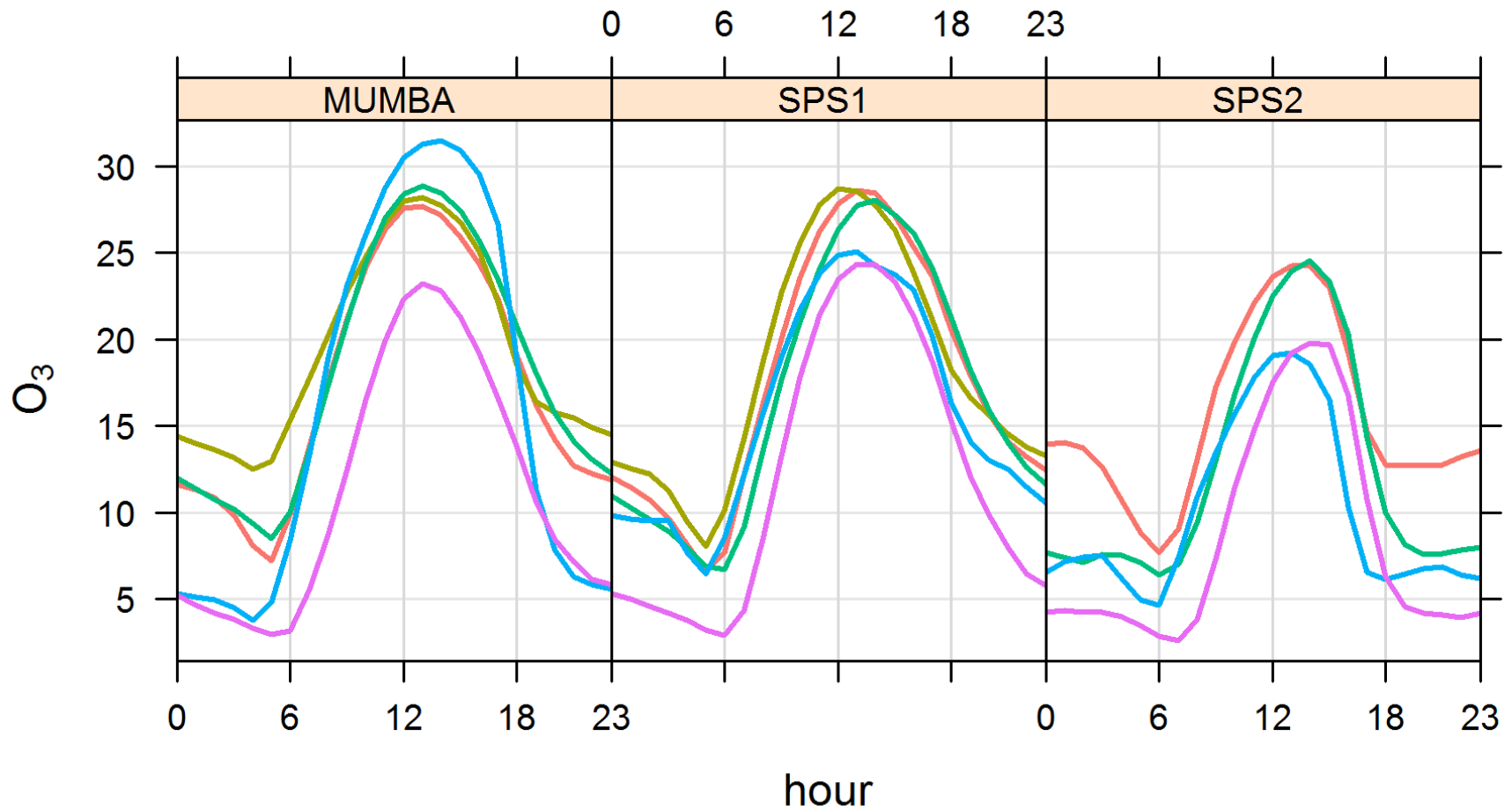
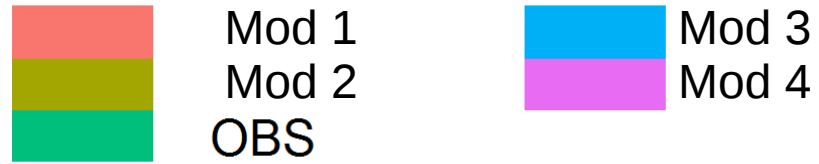


Nesting down to 3km resolution over the NSW GMR

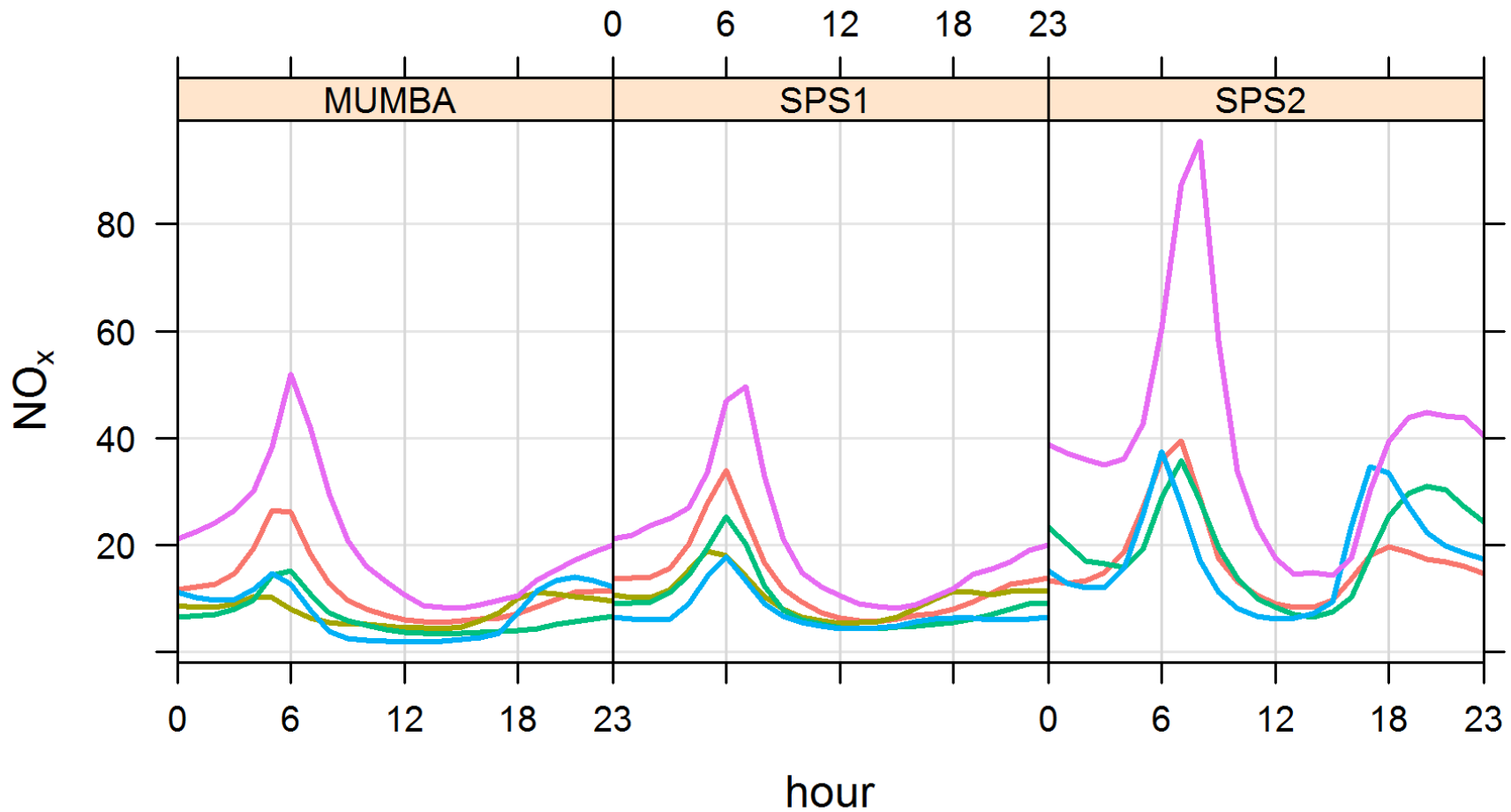
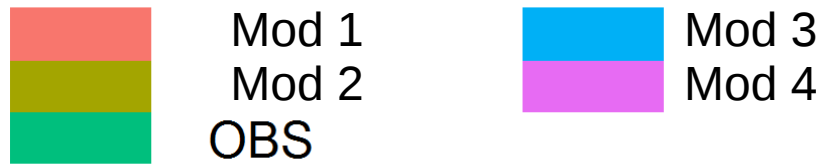
Other

- Emissions
 - 2008 inventory
 - Supplied by NSW EPA/OEH, processed by UoM
 - Radon inventory by ANSTO
- Validation
 - SPS1: 2011-02-01 to 2011-03-08
 - SPS2: 2012-04-10 to 2012-05-15
 - MUMBA: 2012-11-25 to 2013-02-28

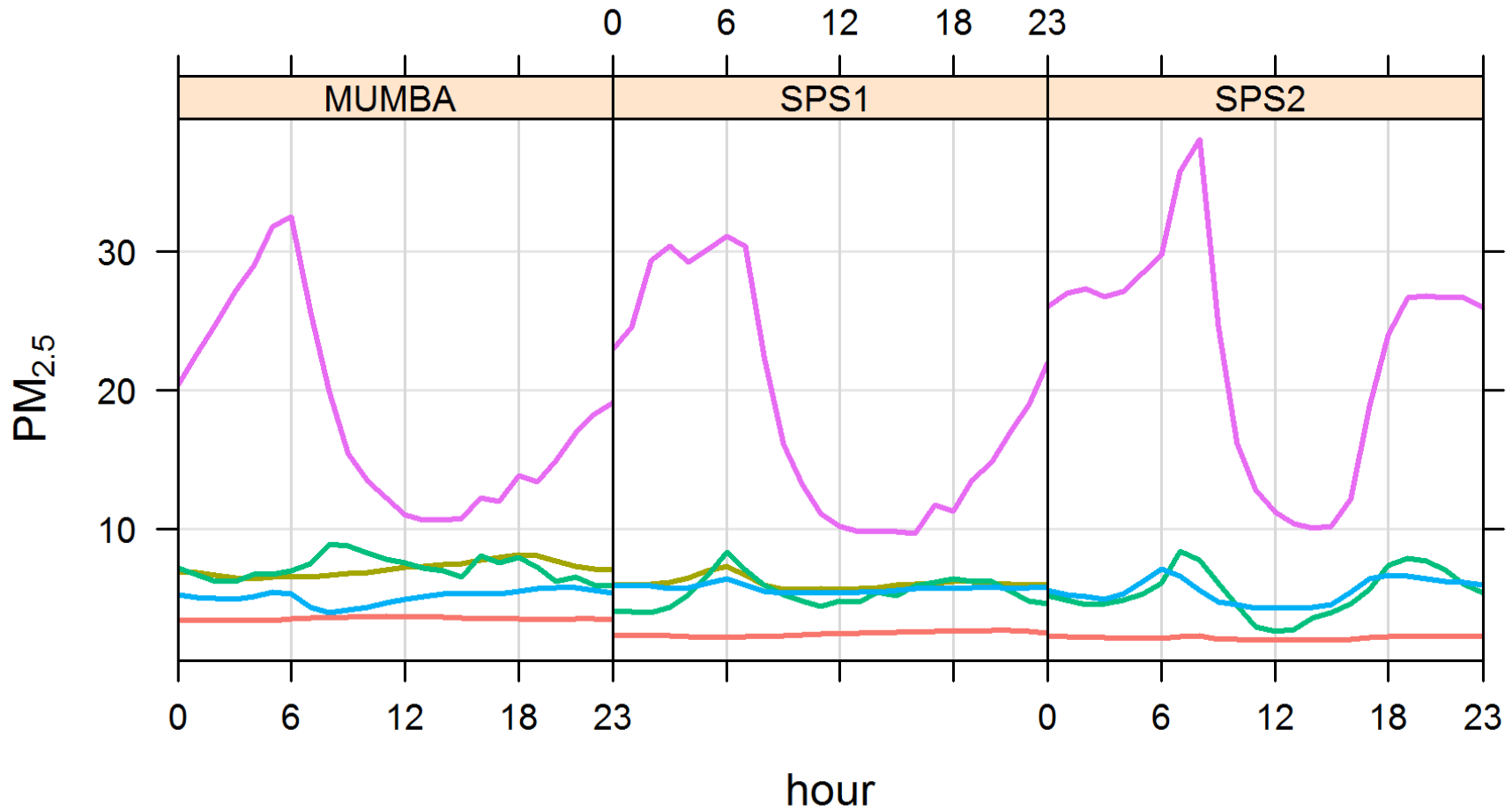
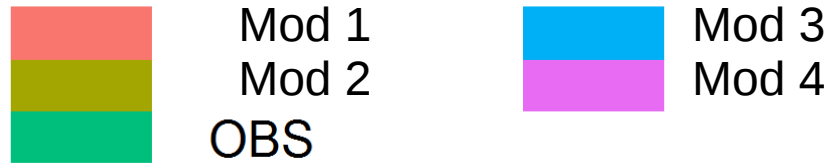
Ozone



Nitrogen oxides



Fine PM



Conclusions & challenges

- Good: biogenics, O₃
- Mediocre: NO₂
- Bad: PM_{2.5}
- Ugly: PM₁₀
- More work to be done on PM_{2.5}
- Emission inventories have been a low priority
- Keep everyone on task
- Future emission scenarios