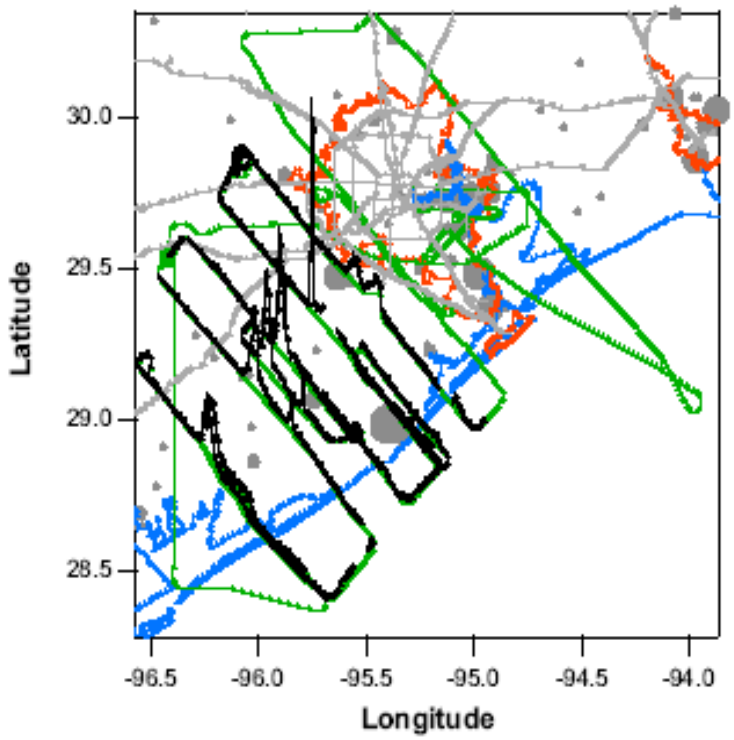
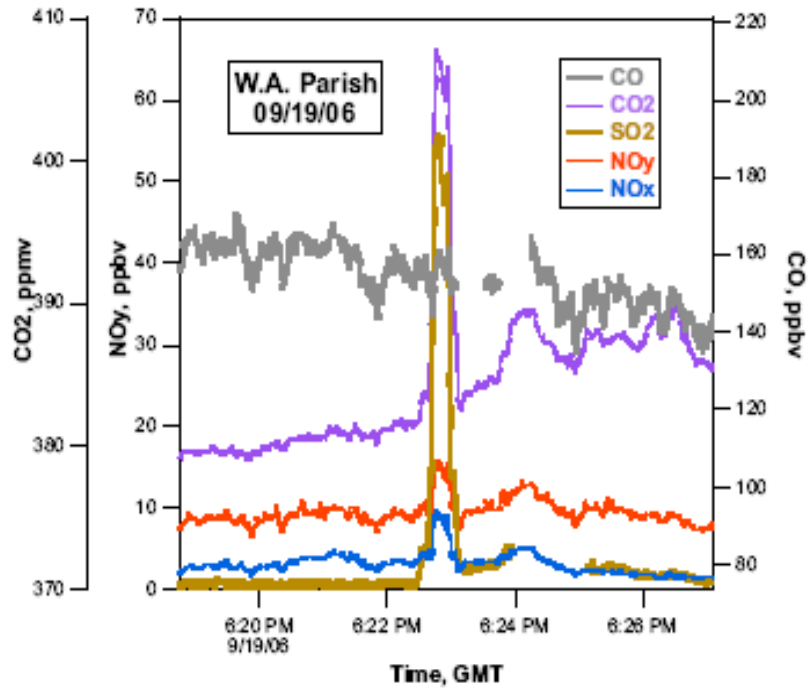
Confirmation of EGU emission reductions through aircraft measurements

Jeff Peischl
Tom Ryerson:

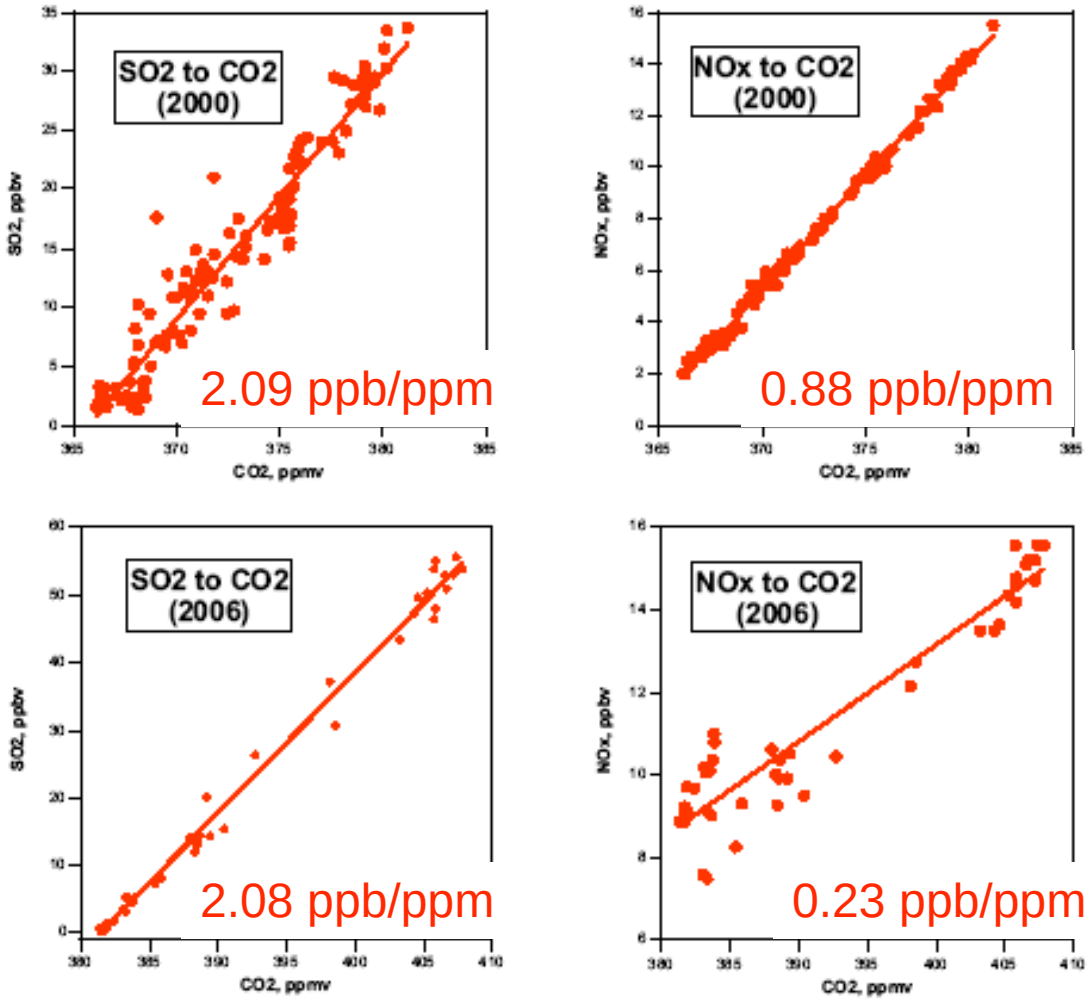
W.A. Parish: changes since 2000





W.A Parish NOx emissions have been reduced by a factor of ≈4 since 2000

W.A. Parish: changes since 2000



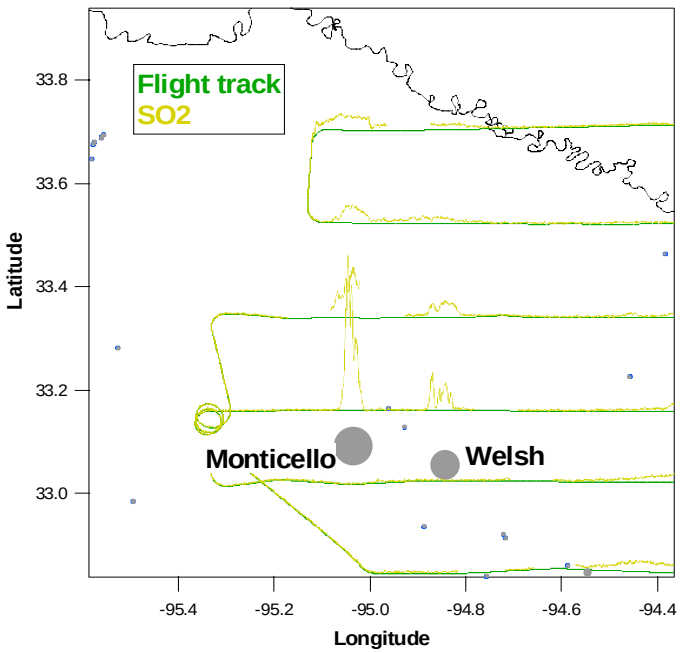
TexAQS
08/28/2000

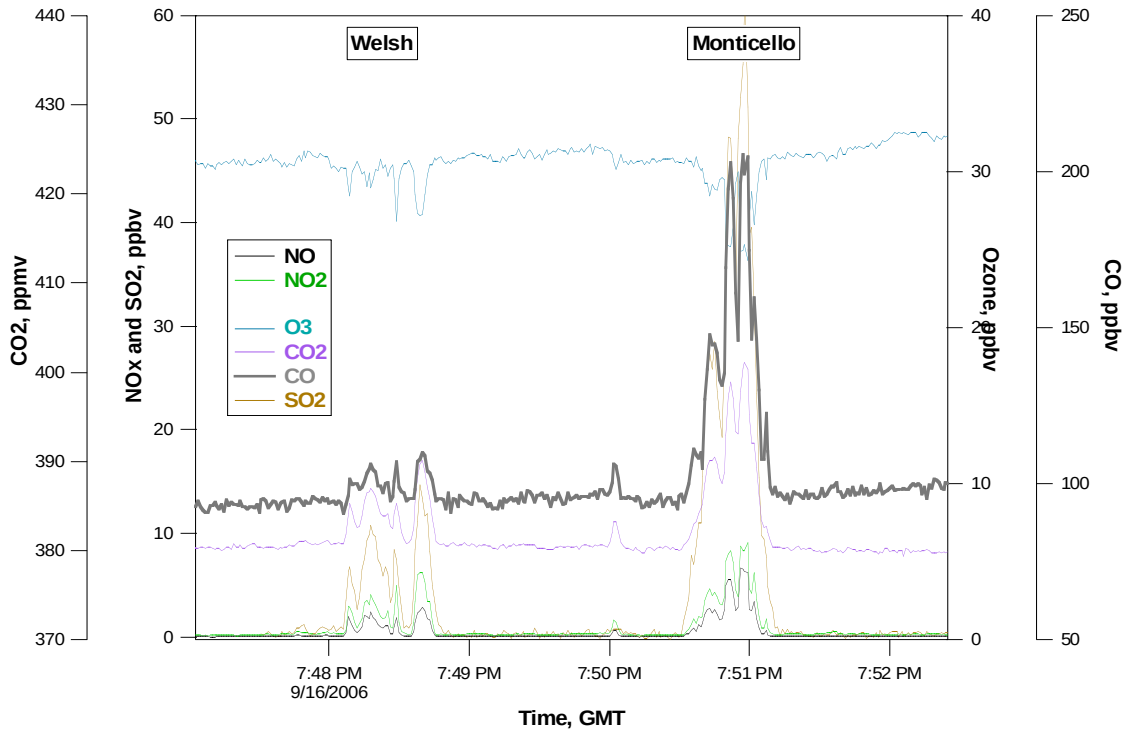
TexAQS II
09/19/2006

SO_2/NOy ratio
2004 (CEMS): 8.8
2006 (P-3): 7.8

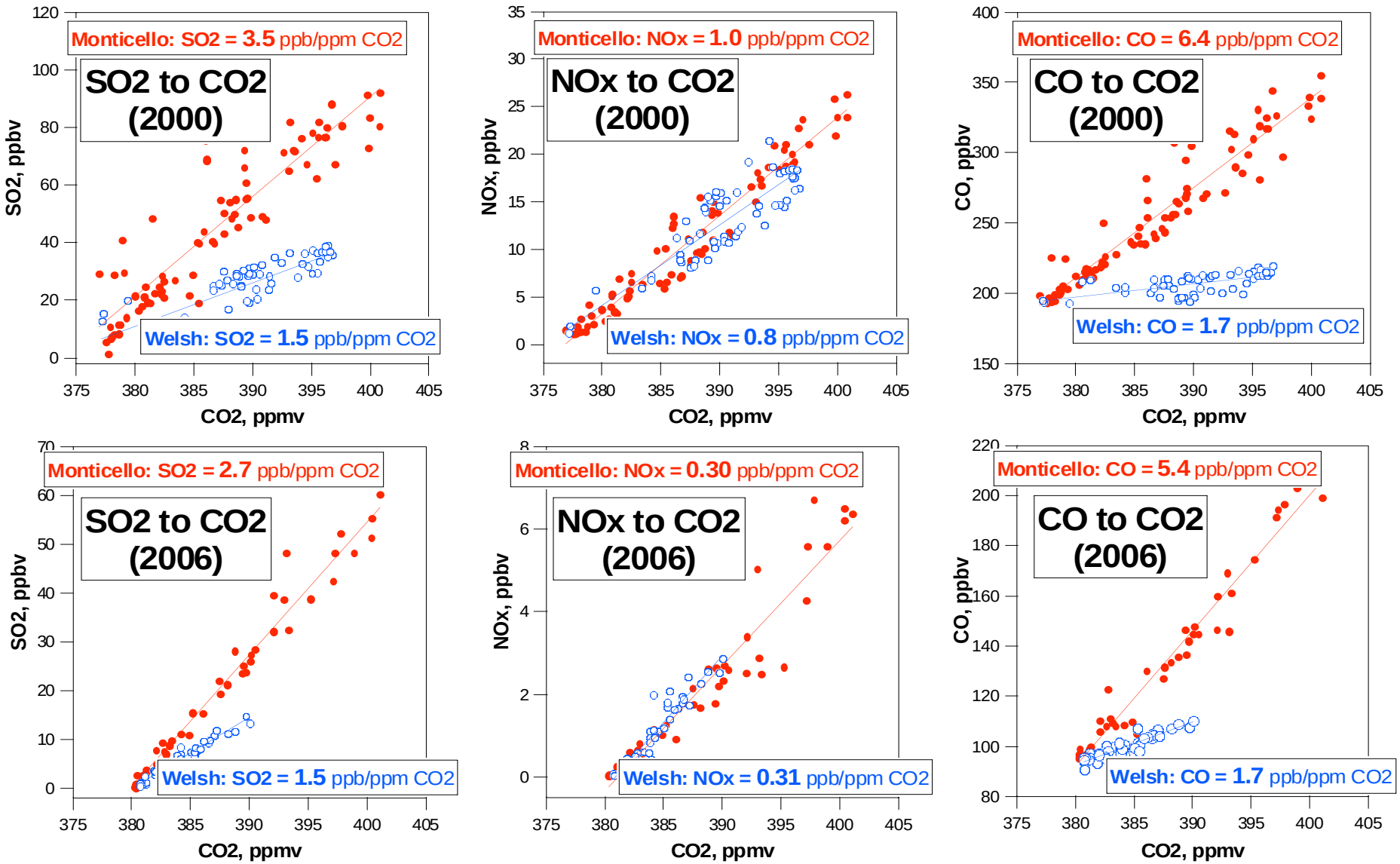
CEMS give excellent results; emission inventories based on them are very accurate

NE Texas plume comparisons





NE Texas: NOx changes since 2000



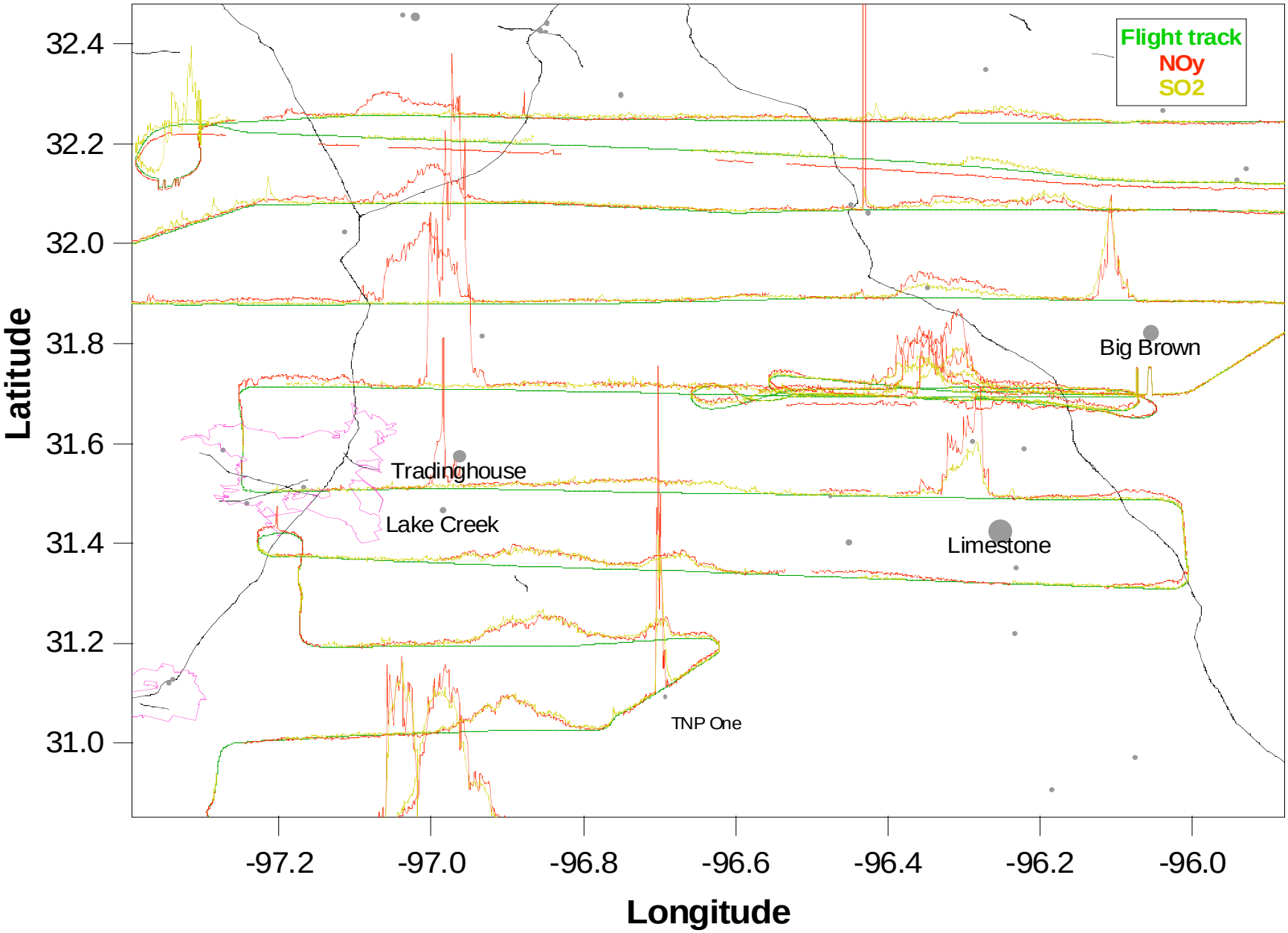
NE Texas: NOx changes since 2000

Welsh and Monticello :

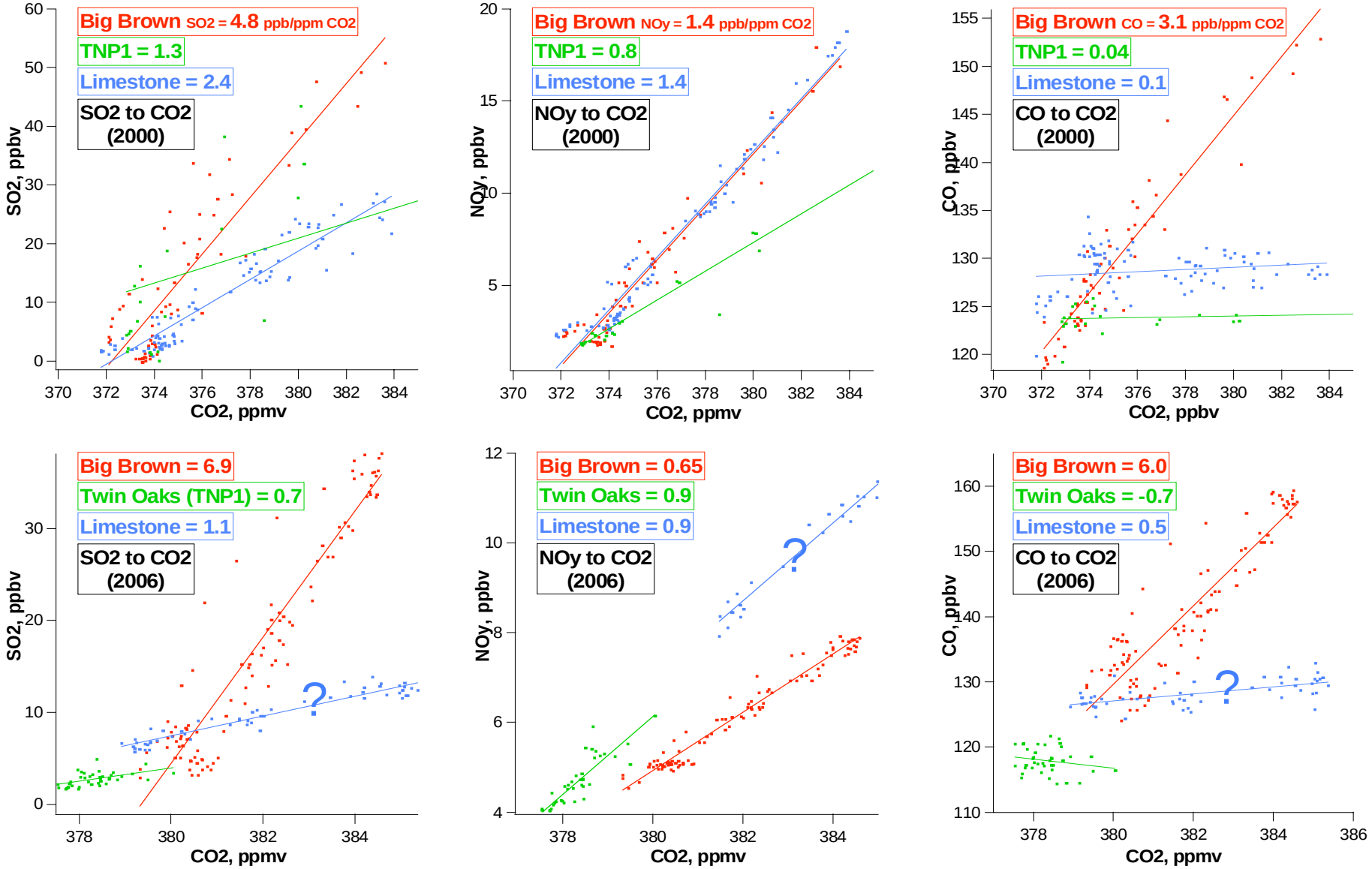
both show factor of ≈3 decrease in NOx emissions

same or similar SO2 and CO emissions ratios

Sept. 10, 2000 flight track



N Texas transect comparison, 2000 to 2006



Changes since 2000

- Big Brown : 50% more SO_2, half the NOy, but twice the CO

- Twin Oaks : half the SO_2, same NOy and CO ratios

SIP Relevant Findings

Question A: What distribution of anthropogenic and biogenic emissions of ozone and aerosol precursors can be inferred from observations?

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- CEMS give excellent results; emission inventories based on them are very accurate.
- NOx emissions from urban and rural power plants have been reduced by factor of ≈3-4 since 2000.
- CO emissions are still remarkably high (up to 0.6% of C in fuel) from some power plants.