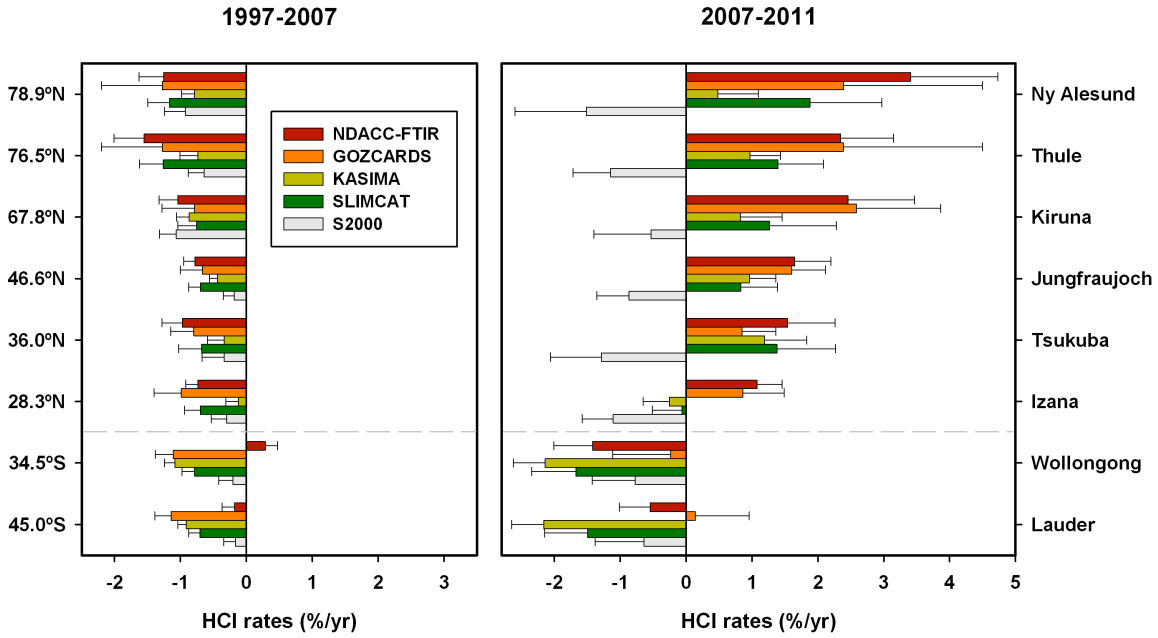
Unexpected Reversal of Northern Hemisphere Stratospheric Chlorine Burden



- Observations at 8 NDACC FTS sites detected an anomalous change in the HCl total column around 2007.
- Widely separated in latitude, the sites can act as a global observation instrument. Southern hemisphere shows continued decrease.
- GOZCARDS merged satellite records show the increase is confined to the lower stratosphere.
- KASIMA and SLIMCAT modeled HCl reveals slowed circulation.

- Slowed NH wind circulation as opposed to increased emissions, has lead to increased stratospheric age of air (up to .5yr & counter to some climate change predictions) allowing enhanced conversion of Cl containing species to the reservoir HCl.
- Near surface observations show continued anthropogenic Cl emissions in line with the Montreal Protocol.
- Enhanced HCl in the lower NH stratosphere increases possibility of winter Ozone loss.

Science *6 Nov 2014, E. Mahieu et al.*