



Integrated non-CO₂ Greenhouse gas Observing System

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ECN

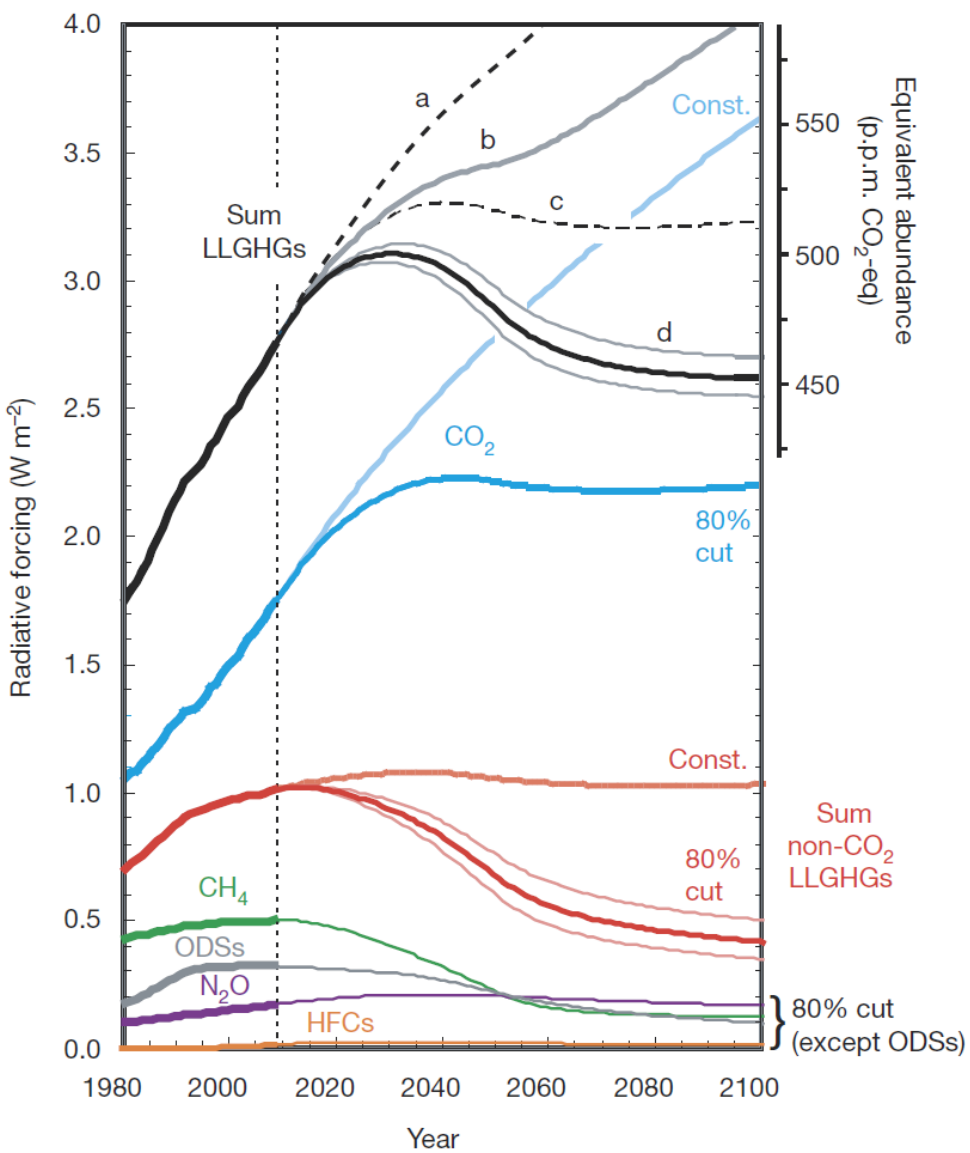
Energieonderzoek
Centrum
Nederland

InGOS objective & means



Improving and extending the European observation capacity for non-CO₂ greenhouse gases

- Infrastructure project: Integrating Activities
- Budget 10 M€, EU 8 M€
- 34 partners, 14 countries, 24 observing stations
- 1 October 2011 – 1 October 2015
- Will integrate the non-CO₂ observations in ICOS infrastructure
- Builds on: CHIOTTO, SOGE, CarboEurope, GHGEurope, IMECC etc.
- Coordination: ECN, NL



- a = continued 2008 emissions
- b = -80% longlived non- CO_2 2050
- c = -80% CO_2 2050
- d = -80% all GHG 2050

Possible feedbacks:

- Chemical lifetime
- Natural emissions (clathrates, permafrost)!

Verification of reductions and monitoring of natural sources will be crucial!

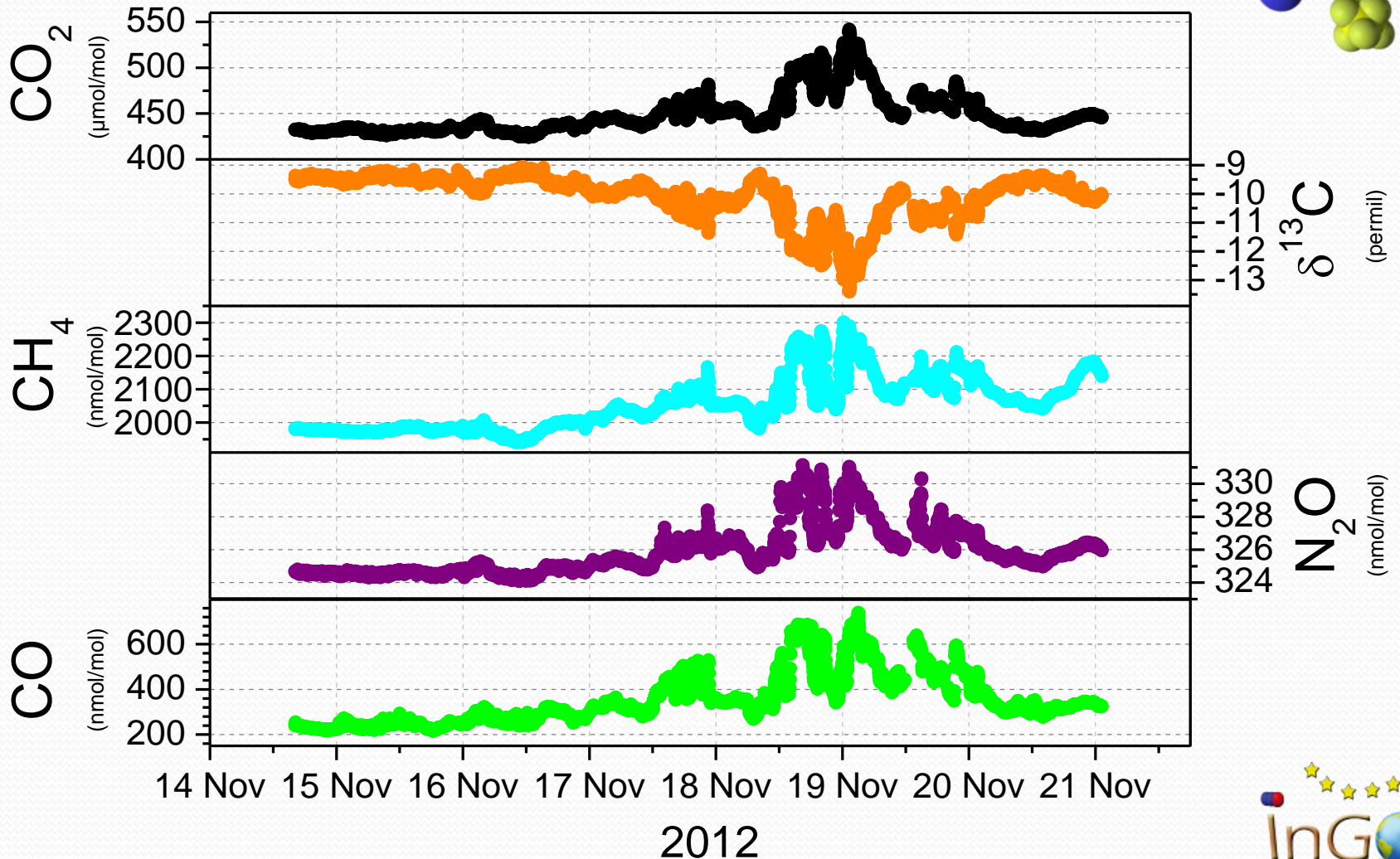
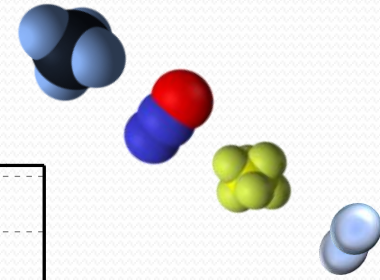


Networking objectives

- Integrate European facilities for NCGHG observations
 - Linking the different communities for CH₄, N₂O, H₂, halocarbons, tracers, atmosphere, ecosystem flux, ocean
- Improve the quality of historical, current and future NCGHG obs. (concentrations, fluxes, atmosphere & ocean)
- Prepare expansion of the network in undersampled regions



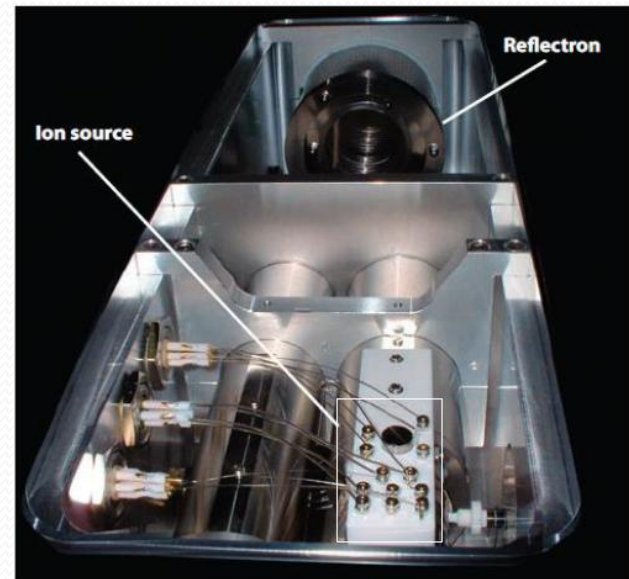
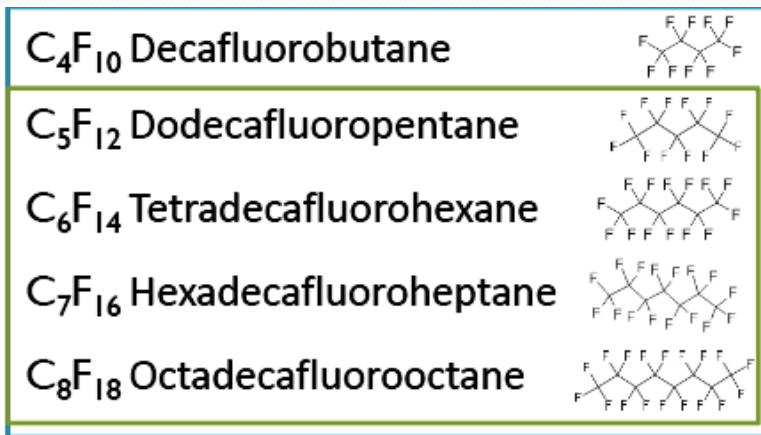
Testing of new instrumentation for CO_2 , $^{13}\text{CO}_2$, CH_4 , N_2O and CO



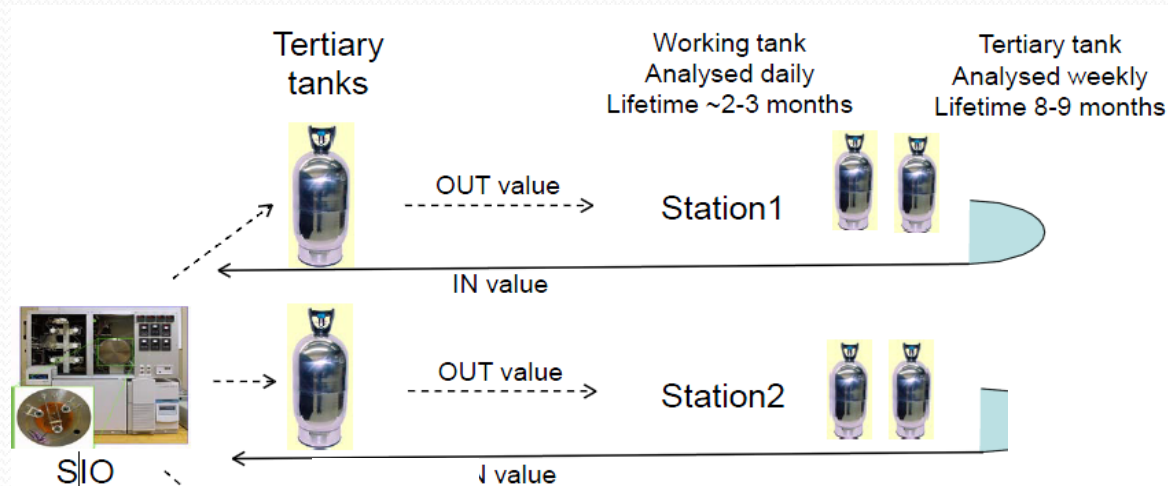
Halocarbons in InGOS

Search for potent new greenhouse gases

New instrumentation (e.g. TOF-MS)

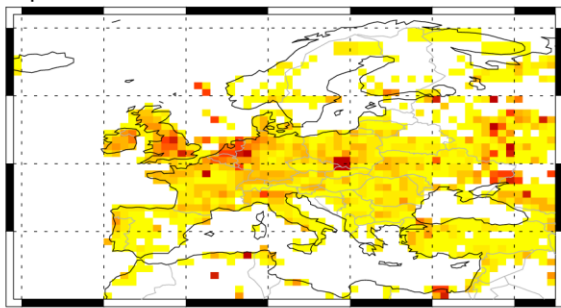


Improved quality assurance within Europe



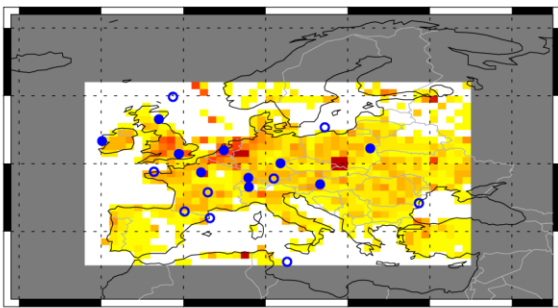
Inverse model development and network optimization

apriori 2007 Scenario S1



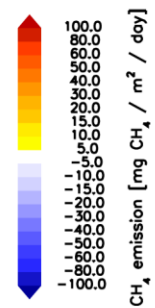
VAR_T35_CH4_25L60_lm5el_eur_EU513_EDG041_V0205_MS_20061201_20080201_J2

TM3-STILT 2007 Scenario S1

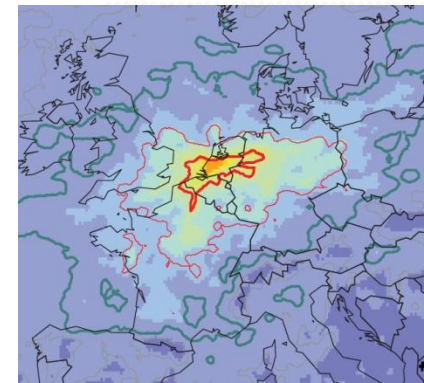


STILT_ch4_aposl_flux_NEU_upoote.mo.nc

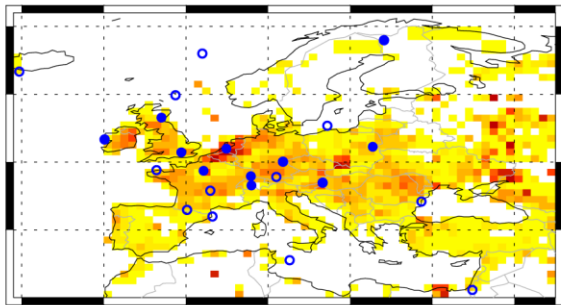
01012007-01012008



CH₄ emission [mg CH₄ / m² / day]

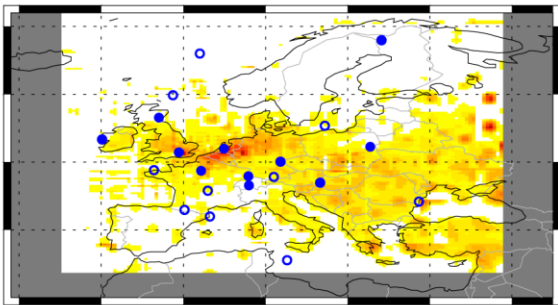


TM5-4DVAR 2007 Scenario S1

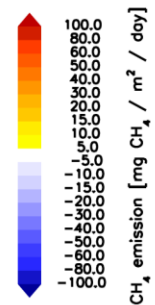


VAR_T35_CH4_25L60_lm5el_eur_EU513_EDG041_V0205_MS_20061201_20080201_J2

NAME-INV 2007 Scenario S1

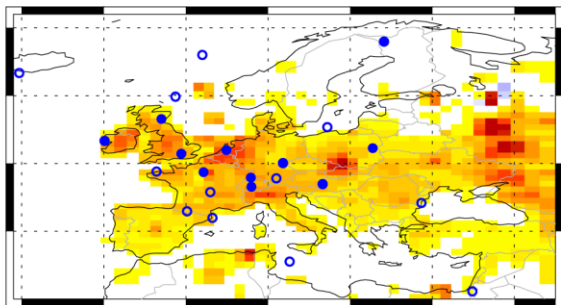


EMIS_ch4_Y2o_2007



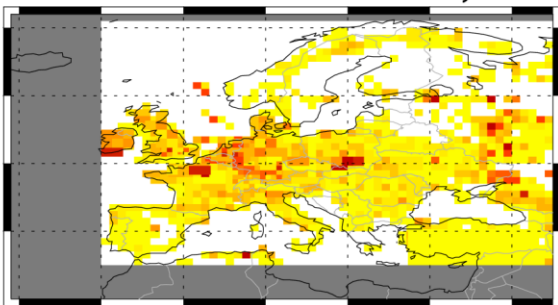
CH₄ emission [mg CH₄ / m² / day]

LMDZ-4DVAR 2007 Scenario S1

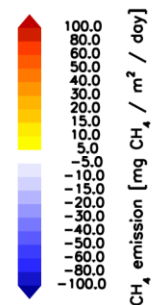


LSCE4DVAR_monthly_emissions_CH4.nc

COMET 2007 inv year2



ch4post2007cm1.osc



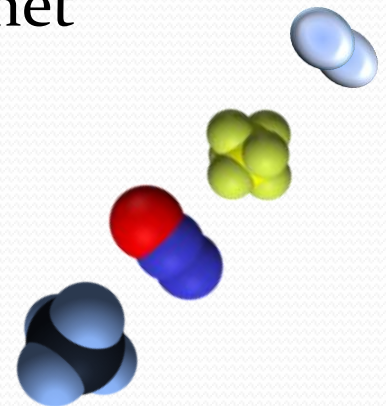
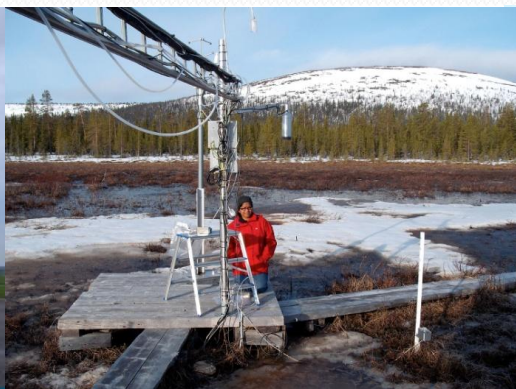
CH₄ emission [mg CH₄ / m² / day]

Bergamaschi et al, 2011 (in prep.)



Access and Services

- Provide access to observation sites and facilities
- Provide NRT data for CH₄, N₂O, SF₆ and H₂ data (building on IMECC/ICOS)
- Provide uniform databases of observational data
 - Halocarbons: NILU/Geomon -> ALE-GAGE
 - Fluxes: UNITUS/ICOS ETC -> Fluxnet
 - Atmosphere: LSCE/ICOS ATC -> GAW
 - Ocean: Memento



More info...

- Abridged DoW available on website
- Leaflets on website/request from project office

<http://www.ingos-infrastructure.eu>

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Dissemination &

Outreach: hensen@ecm.nl

