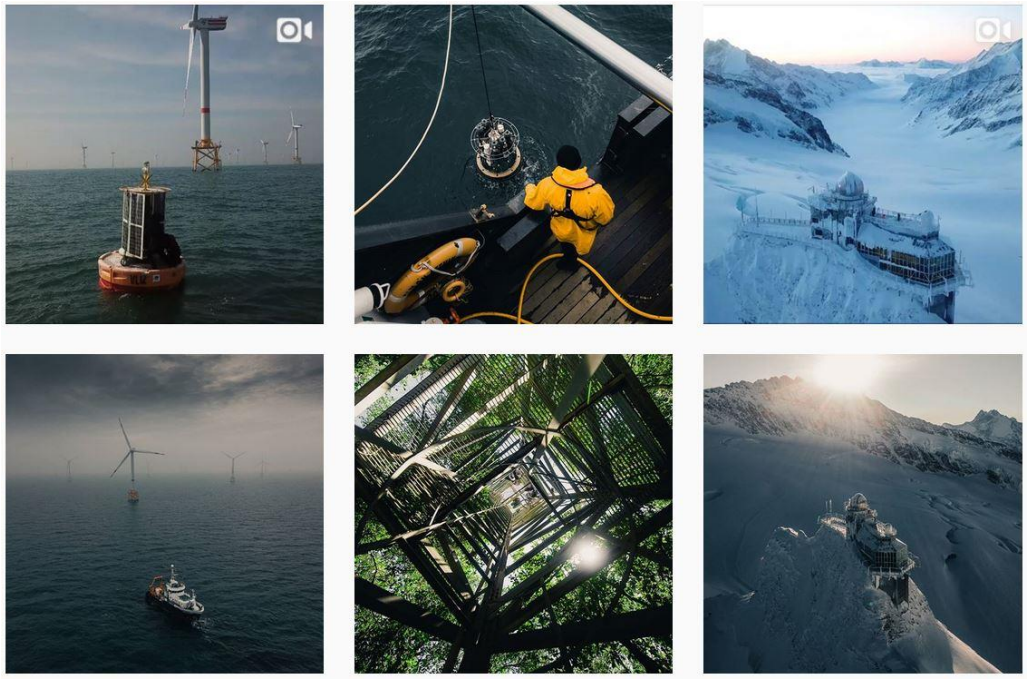

ICOS | INTEGRATED CARBON OBSERVATION SYSTEM

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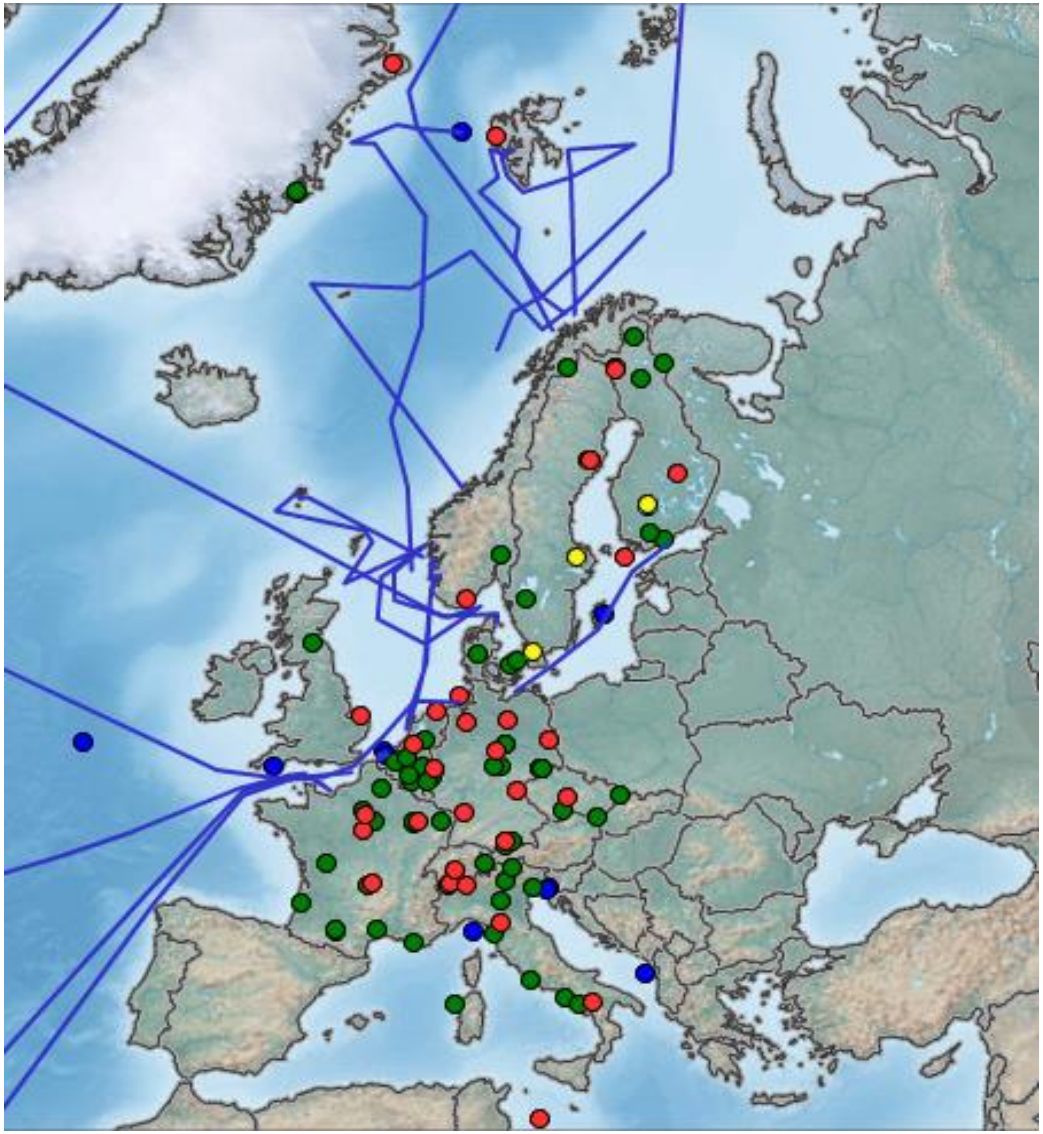
ESFRI landmark infrastructure measuring greenhouse gases

National Networks

134 stations

- 34 Atmosphere stations
- 79 Ecosystem stations
- 21 Ocean stations



ICOS
INTEGRATED CARBON OBSERVATION SYSTEM

User 1
User 2
User 3
Diverse user communities, including data producers and other portals

Metadata registry & catalogue services

Finalized data products

PID

ICOS Carbon Portal

- Data ingestion
- Metadata services
- Data discovery & access
- Usage tracking
- Data management
- Repository administration
- Preservation planning
- User community support

ICOS repository (data, metadata)

Ecosystem Thematic Centre

Oceanic Thematic Centre

Atmospheric Thematic Centre

Calibration Labs

PID

High per-formance computing services

Sensor data

Standardized processing, quality assurance & control

Measurement stations (National networks)

Slide A. Vermeulen, ICOS CP

Step 1 | Step 2 | Step 3

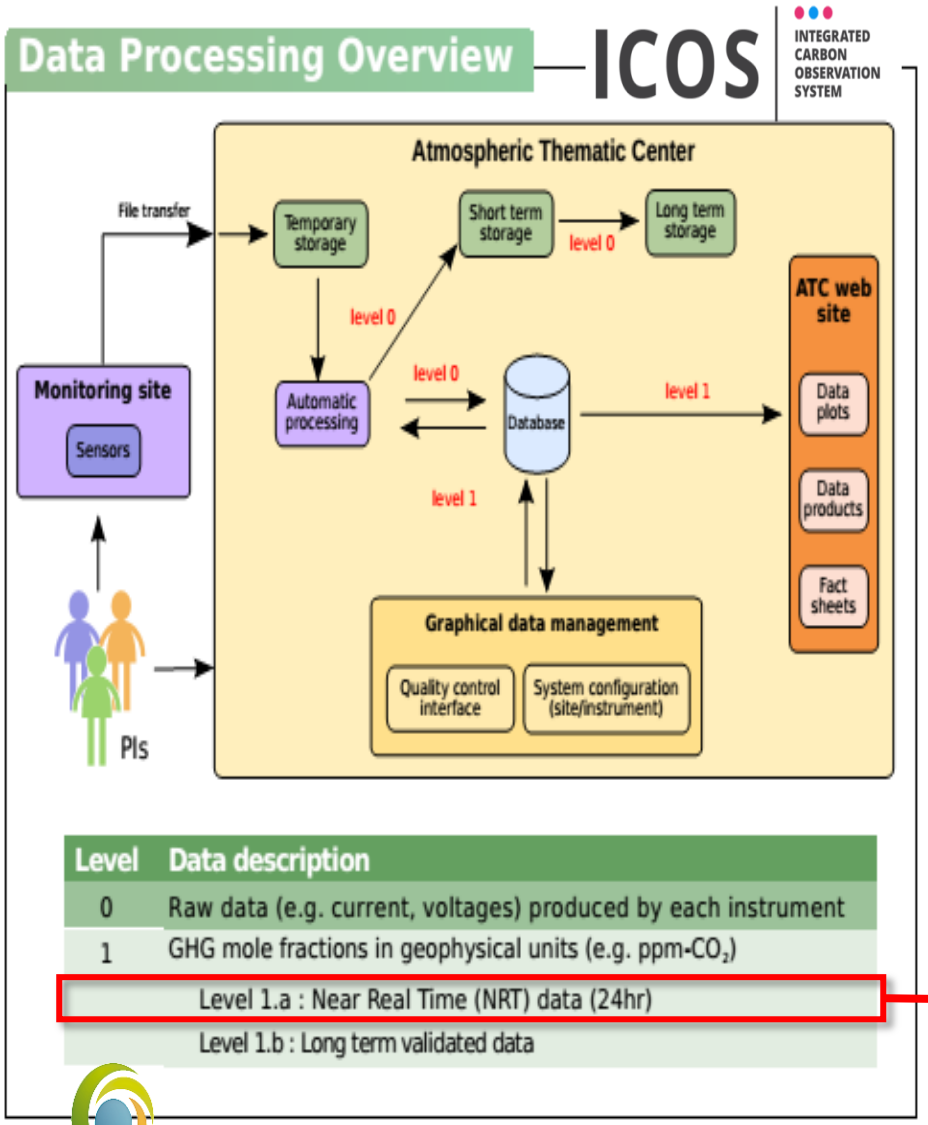
ICOS INTEGRATED CARBON OBSERVATION SYSTEM

- Formal Application and site location assessment
- Station construction
- Initial test period, evaluation, optimisation
- Formal decision of the station integration by the ICOS ERIC General Assembly

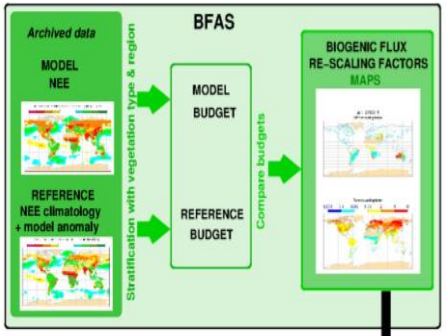
Status of ICOS Atmosphere network

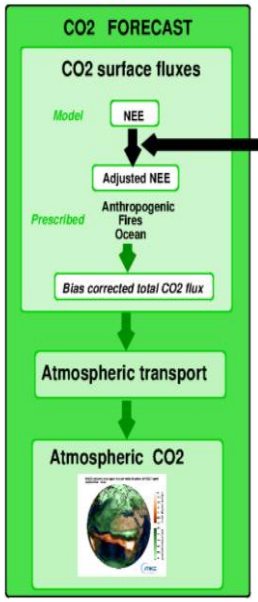
- Contributing network to GAW

ICOS CO_2/CH_4 near real time data for CAMS validation



Level	Data description
0	Raw data (e.g. current, voltages) produced by each instrument
1	GHG mole fractions in geophysical units (e.g. ppm-CO_2)
	Level 1.a : Near Real Time (NRT) data (24hr)
	Level 1.b : Long term validated data





Atmosphere Monitoring Service

ECMWF IFS model
Resolution of TL1279 (~16 km) Vertical: 137 levels
System runs in NRT
Biospheric fluxes: CTESSEL
Anthrop. Fluxes: EDGAR v4.2
Fire fluxes: GFAS v1.2

(i) 10-day forecasts of CO_2 and CH_4 at high-resolution unconstrained by CO_2 and CH_4 column retrievals

LSCE

IFS model scoring

2016-12-01 - 2018-02-27

ICOS Atmosphere Thematic Centre

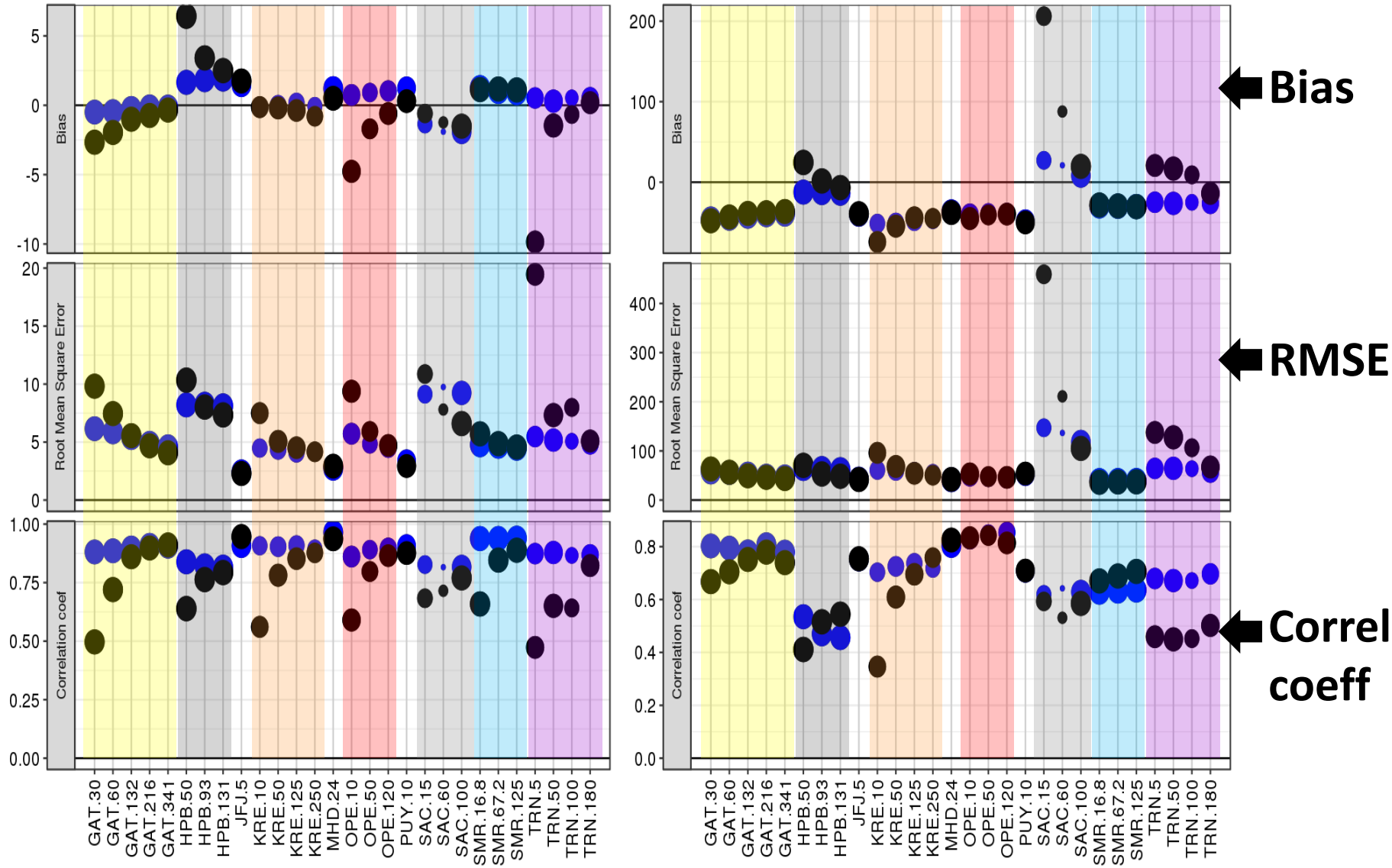
Atmosphere Monitoring Service

Day time

Night tim

CO2

CH4

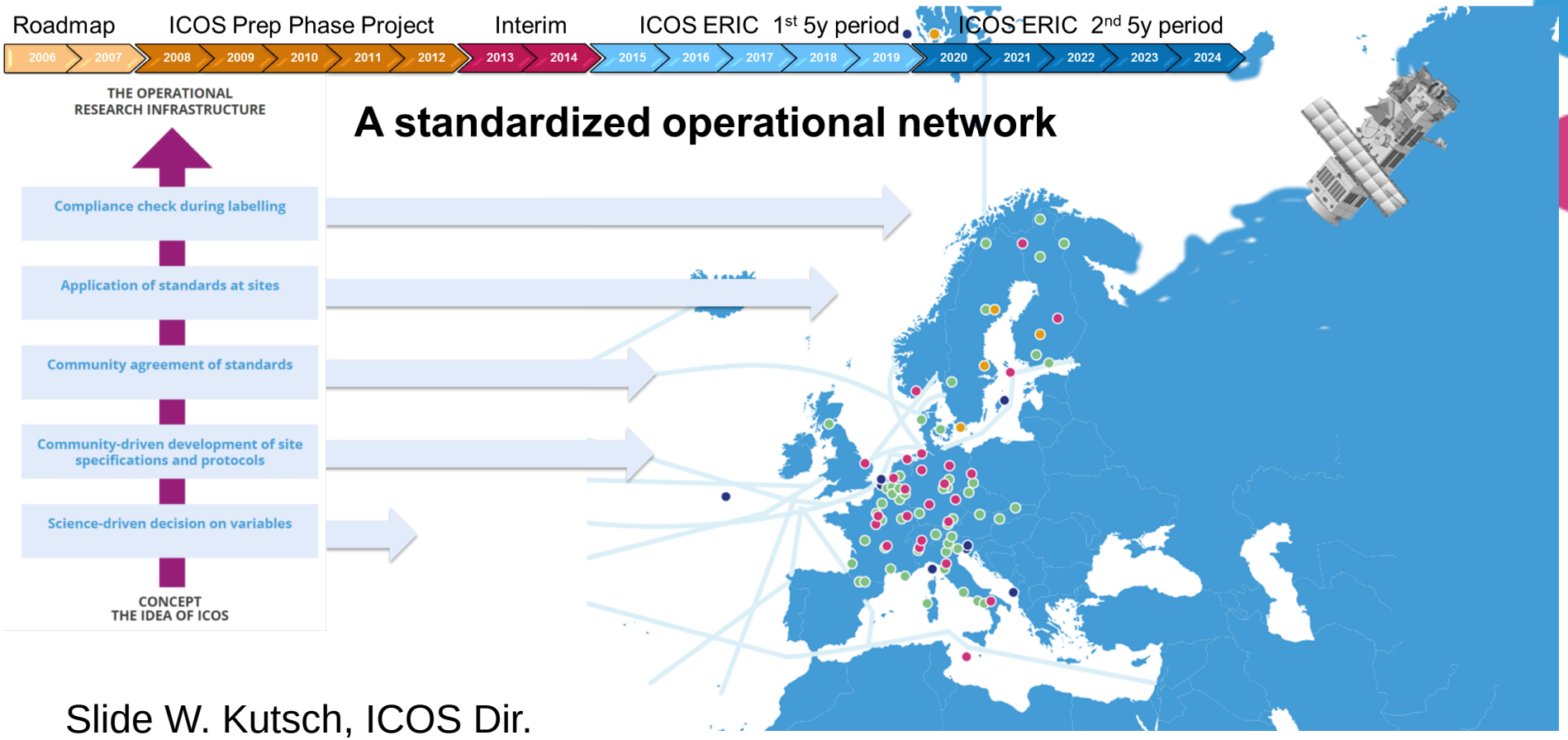


Bias

RMSE

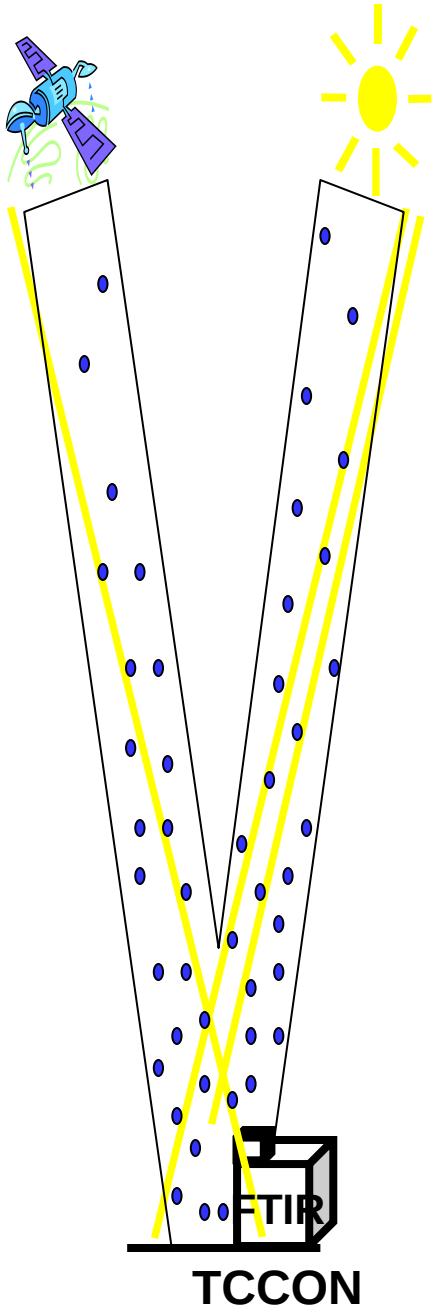
Correl coeff

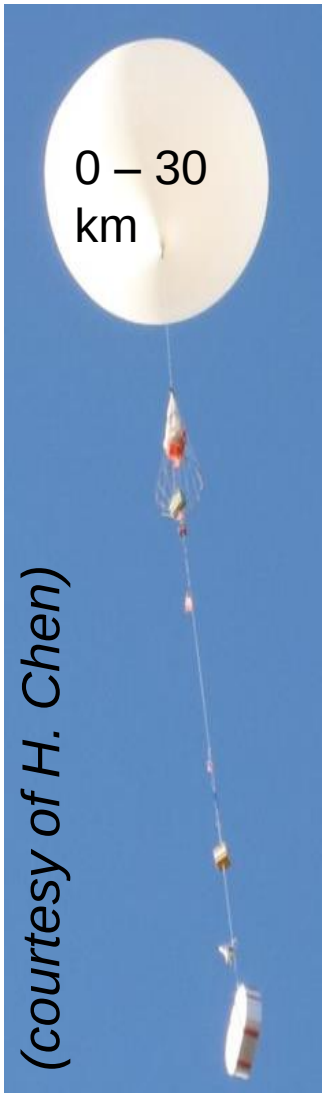
Short history of ICOS



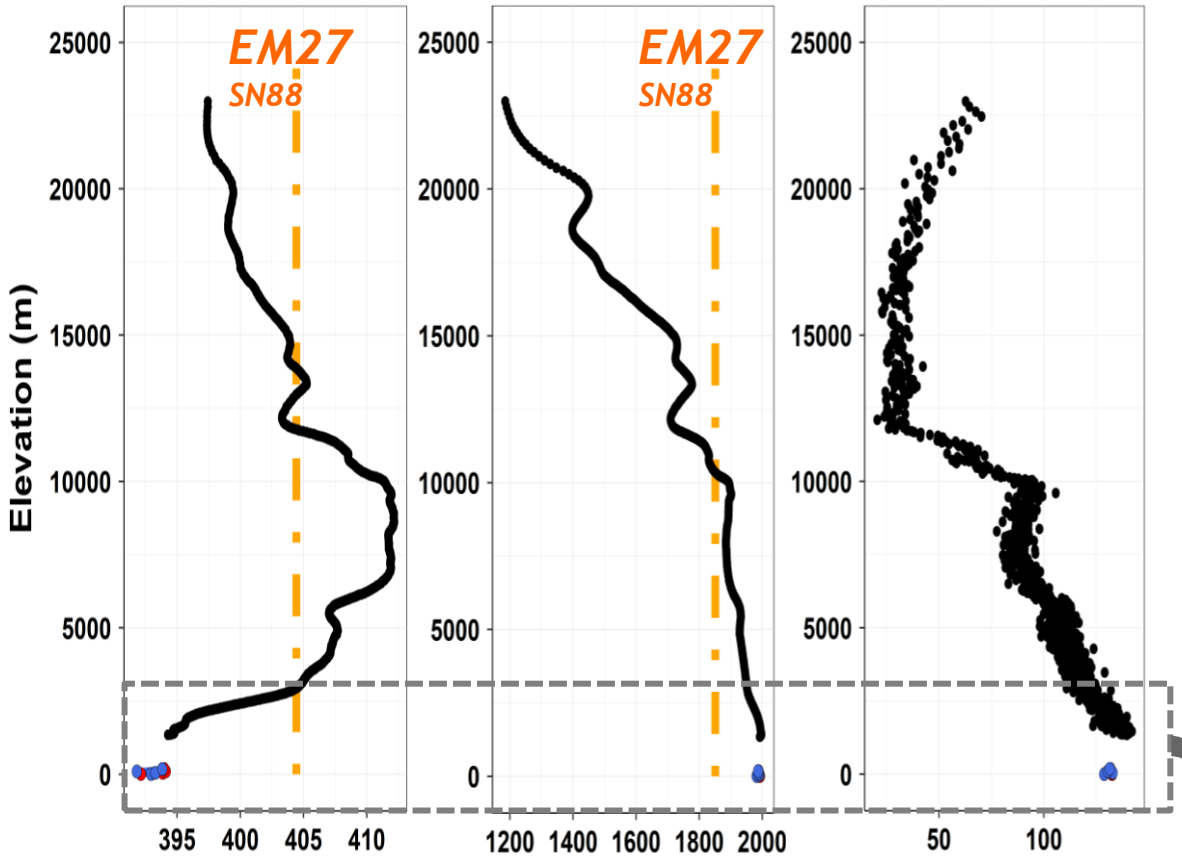
Slide W. Kutsch, ICOS Dir.

Linking remote sensing data to the WMO scale

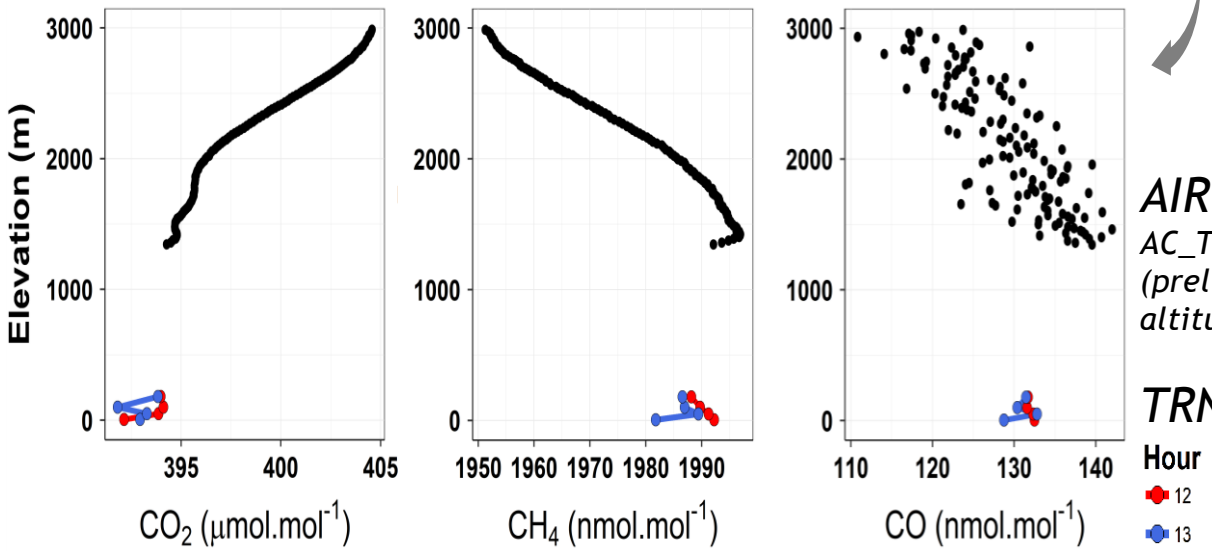




IAGOS



Zoom 0-3 km



May 24 2018 Orleans France

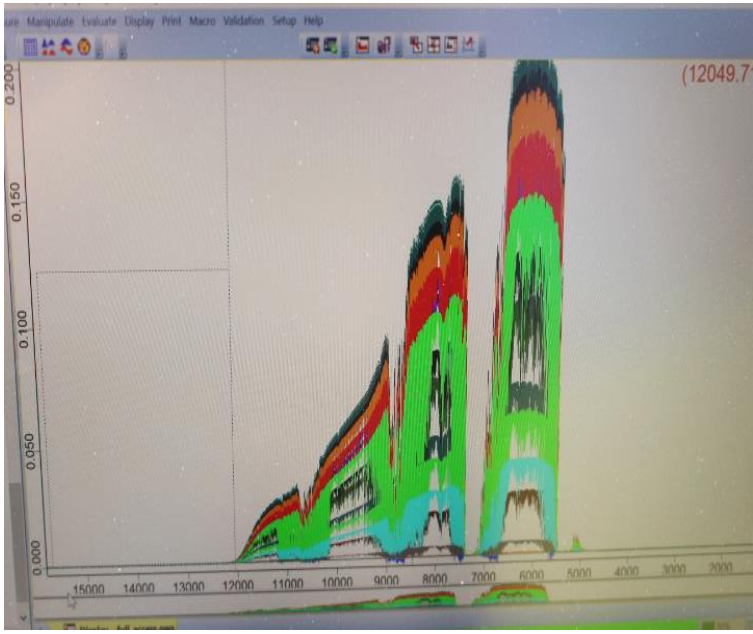
AIRCORE

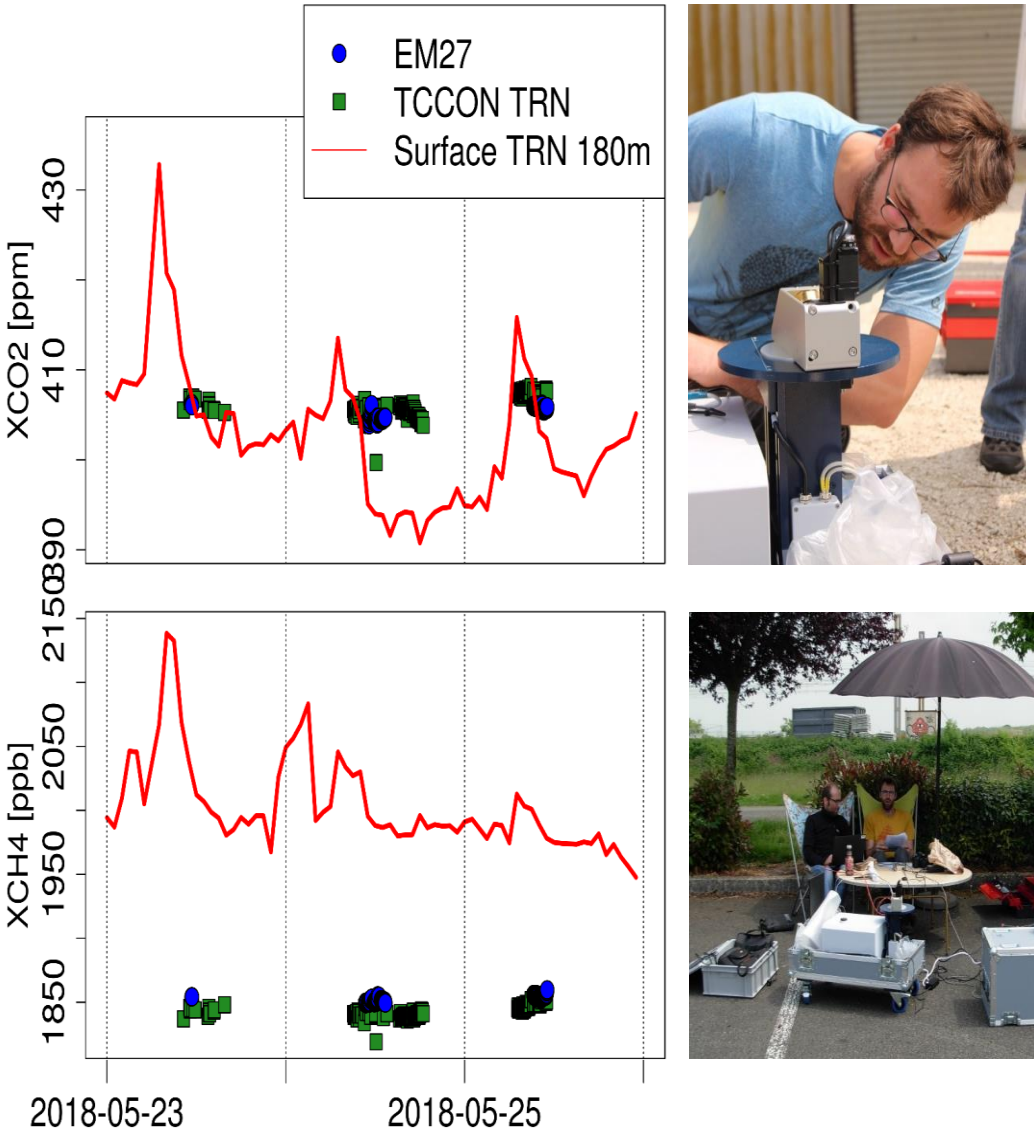
AC_TRN_2018-006
(preliminary profiles: altitudes to be revised)

TRN tall tower

C.Lett, F.Danis, M.Lopez et al.

EM27/COCCON observation at Trainou

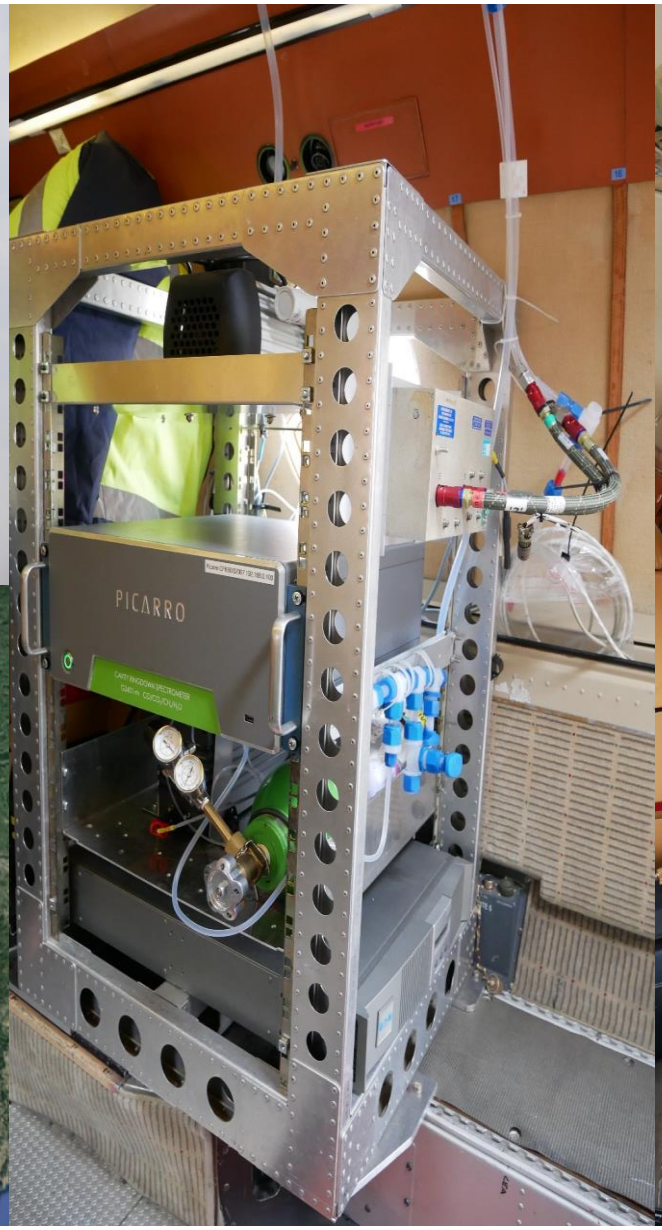


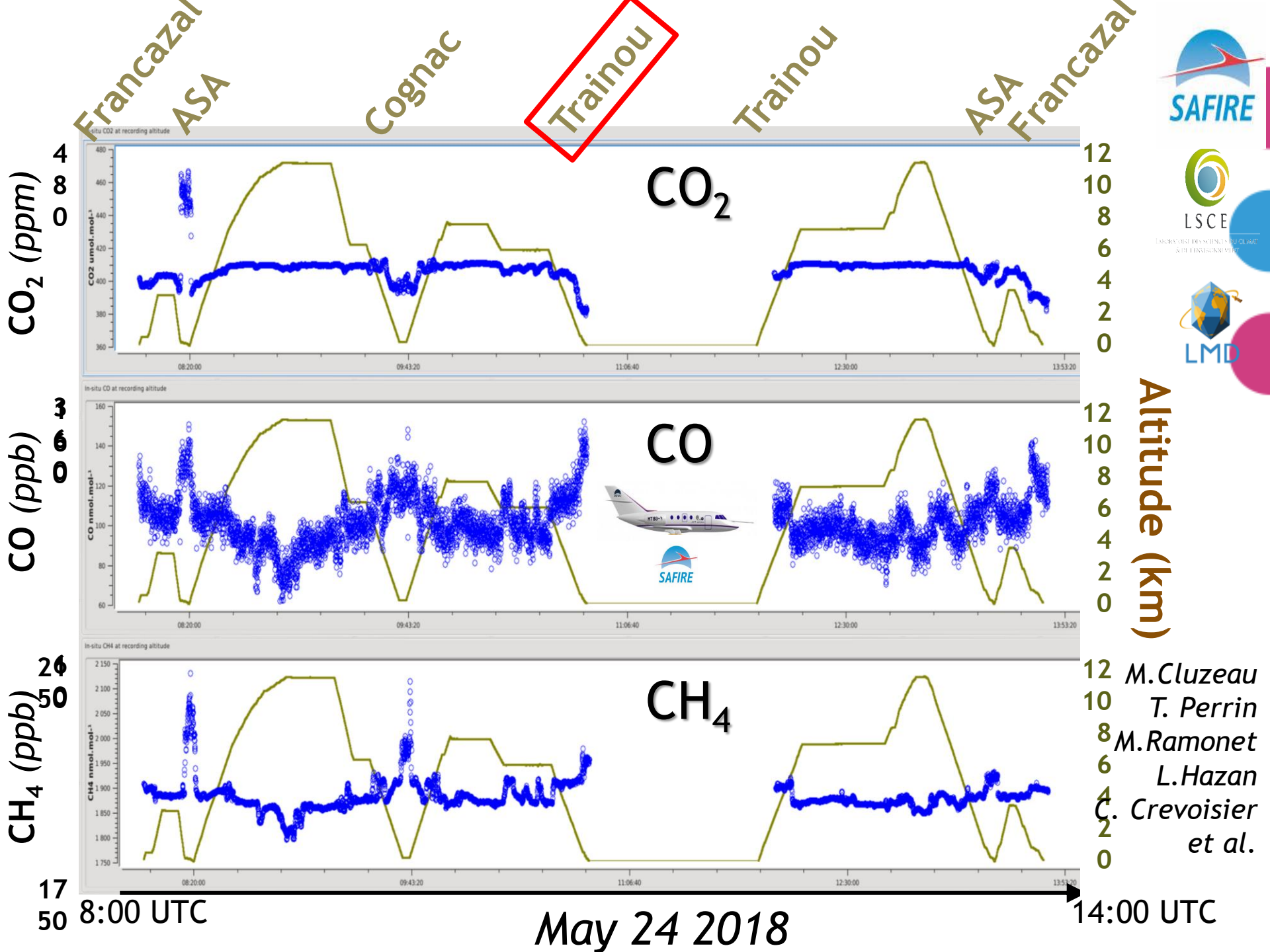


M.Lopez et al.

COMET (DLR lead) – MAGIC campain

Falcon-20




Francazal
ASA
Cognac
Trainou
Trainou
ASA
Francazal
CO2 (ppm)
CO (ppb)
CH4 (ppb)
CO2
CO
CH4
Altitude (km)
8:00 UTC
May 24 2018
14:00 UTC
SAFIRE
LSCE
LMD
M.Cluzeau
T. Perrin
M.Ramonet
L.Hazan
C. Crevoisier
et al.

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Thanks for your attention