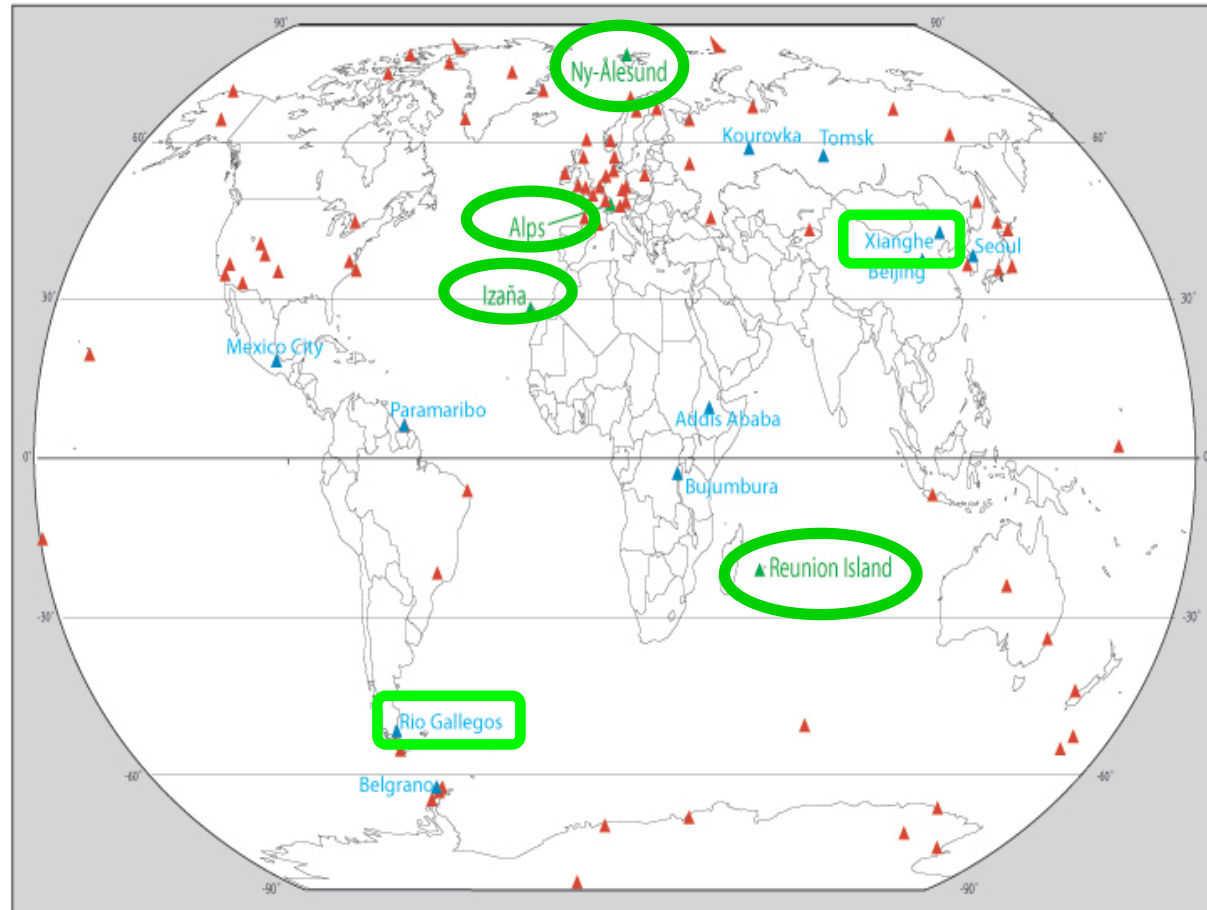# Summary of WP3:
Rapid Data Delivery System of 4 NDACC stations

All (NORS, NDACC, ...)

Klemens Hocke + colleagues at IAP (University of Bern)

NORS Network of Ground-based Remote Sensing Stations (RDDS within NDACC)

Martine De Mazière

	DOAS	MAX DOAS	Lidar	MWR	FTIR
Ny Alesund	(O_3, NO_2)			O_3	(CH_4, CO)
Bern (Alps 1)				O_3, H_2O	
Jungfraujoch (Alps 2)	O_3 , NO_2				CH_4, CO, NO_2, O_3
OHP (Alps 3)	O_3 , NO_2		O_3		
Izana	O_3 , NO_2				CH_4, CO, NO_2, O_3
Xianghe		aerosol, NO_2			
Maido, La Réunion			(O_3)		$CH_4, CO, NO_2, O_3,$ HCl, HF, HNO_3
St. Denis, La Réunion	(O_3 , NO_2)				
Rio Gallegos	O_3 , NO_2				

Rapid Data Delivery System RDDS
Control + Validation

ftp://ftp.cpc.ncep.noaa.gov/ndacc/RD/

Ground station data are delivered **within 4 weeks**

➔ fast control of satellite instruments

➔ validation of MACC model data

➔ optimisation of ground-based remote sensing stations

-File format: HDF GEOMS (+ uncertainties, kernels, a priori, ...)

-RDDS is part of NDACC

Rapid Data Delivery System RDDS
Statistics (state of 15.10.2015)

ftp://ftp.cpc.ncep.noaa.gov/ndacc/RD/

	FTIR	Lidar	UV/Vis	MWR	Total
Number of RDDS data files	291	419	13219	8095	22024
Number of downloads	582	460	10094	3709	14845

Attention: Granularity of files is not considered (e.g., FTIR has 1 file / 2 weeks)

Courtesy of Roger Lin (NDACC)

NORS and MACC

(from R. Engelen)

MACC-II Deliverable D_82.9

Validation report of the MACC near-real time global atmospheric composition service

System evolution and performance statistics
Status up to 1 June 2013

Date: October 2013
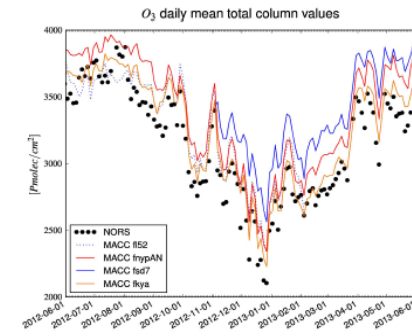**Lead Beneficiary:** KNMI (#21)
Nature: R
Dissemination level: PU
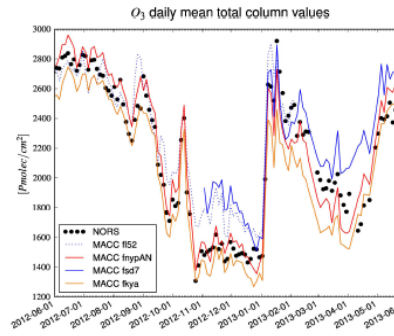
Grant agreement n°283576

Figure 3.6.8: Stratospheric ozone columns (20-60km) by MACC_osuite (red), MACC_fcnrt_MOZ (orange), MACC_CIFS_TM5 (blue, full line), and MACC_fcnrt_TM5 (blue, dotted line), compared to NORS MWR data (black dots) at Ny Alesund (79°N, 12°E, left) and Bern (47°N, 7°E, right) for the period June 2012-May 2013. The MWR averaging kernels are applied to model output and all time series are smoothed with a 3-day running mean for readibility.
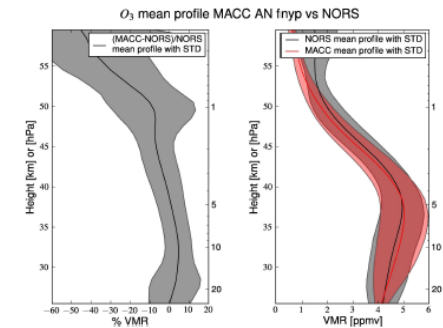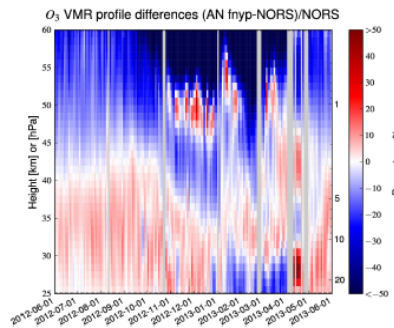

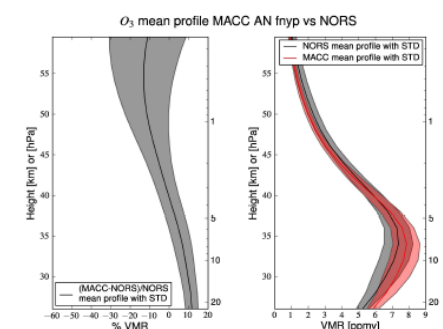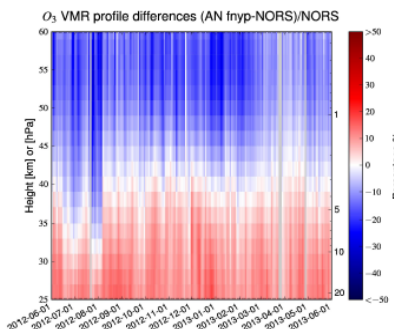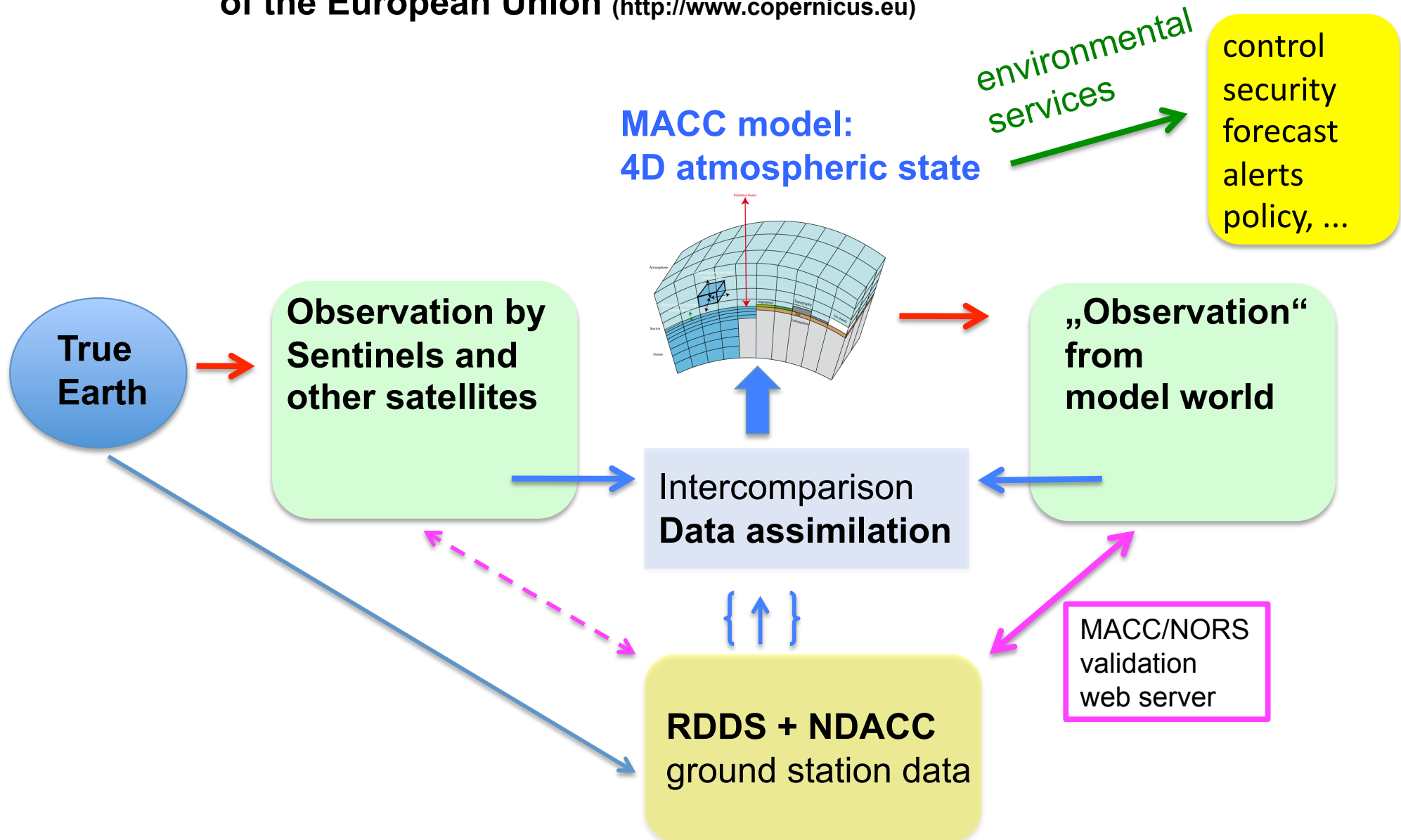Figure 3.6.10: as previous figure but above Ny Alesund.

Figure 3.6.9: Time series of the relative differences between the MACC_osuite and MWR observations at Bern for the period June 2012-May 2013 (left), mean relative bias +/- one standard deviation of differences (middle) and O₃ mean profiles over the same period (right).

Copernicus Earth Observation Programme
of the European Union (http://www.copernicus.eu)

environmental services

control security forecast alerts policy, ...

MACC model: 4D atmospheric state

True Earth

Observation by Sentinels and other satellites

„Observation" from model world

Intercomparison **Data assimilation**

MACC/NORS validation web server

RDDS + NDACC ground station data

Conclusions

✓ RDDS and the Validation Web Server are „building blocks" of the Copernicus Earth Observation programme

✓ Within 4 weeks, RDDS provides HDF GEOMS data for cross-validation between ground-based remote sensing stations, satellites and models (e.g., MACC)

✓ RDDS is a tool for cooperation, discussion, capacity building and atmospheric research for scientists and engineers worldwide

Acknowledgment

We thank our partners from NDACC and AVDC.

Especially: **Ian Boyd** and **Roger Lin** who helped us in all questions concerning GEOMS HDF, change of variable names, operational data delivery, ...