

Why Is Increasing the Number of Near-Real-Time Stations All Important for ACTRIS?

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The Big Picture: The EC Digital Agenda

*“Quite simply, knowledge is the engine of our economy.
And data is its fuel.”*

(Neelie Kroes, former European Commission Vice President in charge of the Digital Agenda)

EU Commission’s Digital Agenda:

- Digital technologies are to be used for generating economic growth (next Facebook, Google, Air BnB, ...)
- Data has to flow as freely as possible to be available for new products and services.
- A whole General Directorate is working on this!
- Every project funded has to demonstrate how it fits into digital agenda (section on socio-economic impact).

Which will be the future users of Copernicus?

- EO Professionals
- Other Private Services (e.g. Transport, Tourism, ...)
- Public Authorities
- Policy and Decision Makers
- Research
- Education (including schools)
- ...
- Public (all citizens) ??



Open to new market opportunities – from few to many users
BUT
Each different category could have different requirements for data management



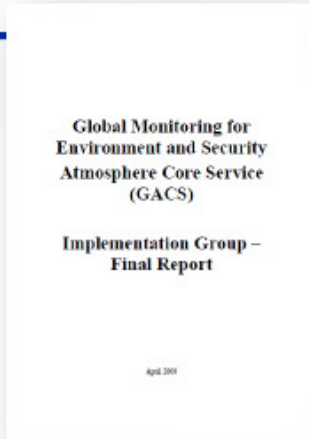
~2004

Present

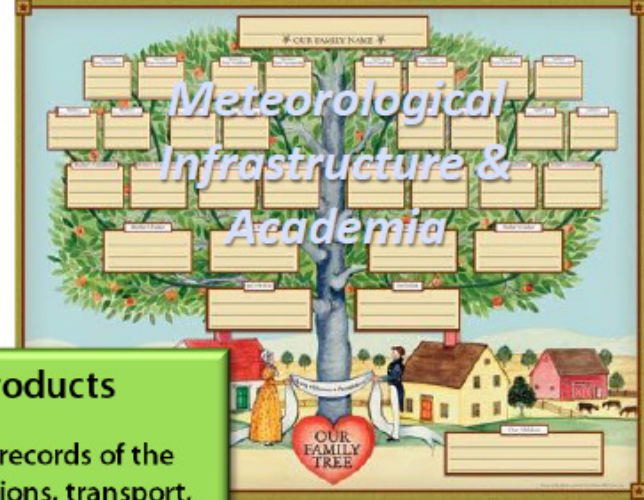
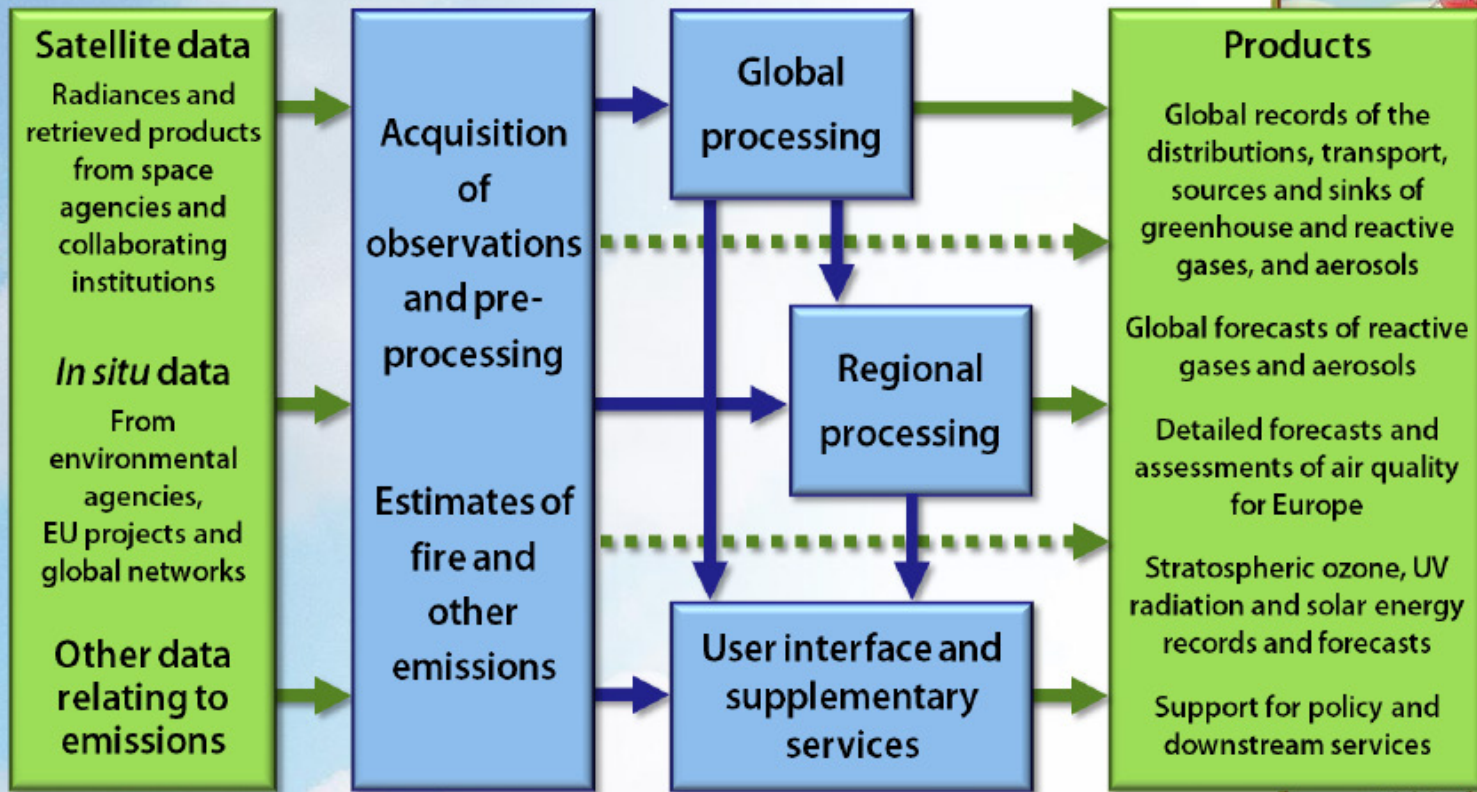


~2006

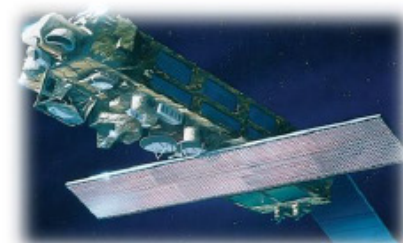
Present



Transforming observations into information



The global observing system for atmospheric composition



Satellites



...



Balloons

Airplanes

Trains

Ground-based stations

Ships



Key elements of the data and information policy

➤ *Free, full and open access*

- **No restriction on use nor on users**

Reproduction, redistribution with or without adaptation
Commercial and non-commercial purposes

- **A free of charge version of any dataset is always available** (under pre-defined format on Copernicus dissemination platform)

- **Worldwide without limitation in time**



This policy applies to

A. Data (and information) generated inside Copernicus

Sentinel mission data
Service information



Does not apply to

B. Data (and information) generated outside Copernicus

Contributing Mission data
In situ and reference data and information

Copernicus sets the rule for A and follows (or negotiates) the rules for B set by the data providers

Success for ACTRIS-ESFRI:

- ACTRIS-ESFRI will establish ACTRIS (stations & facilities) as permanent infrastructure.
- Will be successful only if relevant (for digital agenda / Copernicus)

Funding & Visibility at national level:

- Your national funding agency can demonstrate they are contributing to Copernicus (with your station)
- Increased chances of getting national funding on ACTRIS ticket.

Visibility:

- Work towards visibility of network and station in final product.

2 Routes For Data Submission

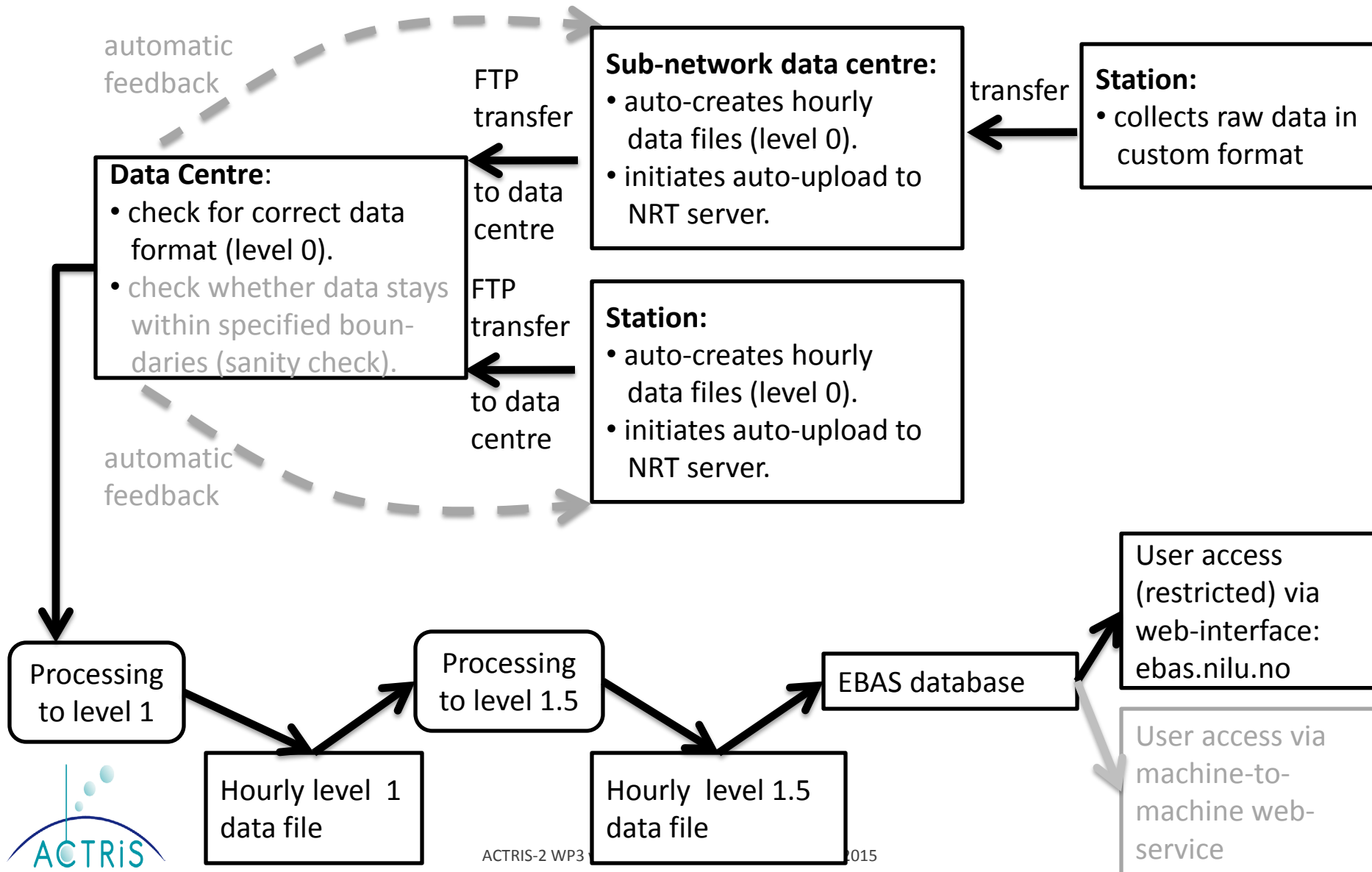
Regular, annual submission:

- Submission of annual dataset by **30 June** the following year.
- Data shall have highest level of QA possible.
- Dataset assembled by data originator, because detail knowledge resides here.

Near-Real-Time Data Submission:

- Submission shall be collected and disseminated within max. 3 hours of measurement.
- Compromise on data quality due to auto-processing accepted.
- Alert service for provider if instrument “misbehaves”.
- Central data processing to ensure uniform dataset and implement alert service.

NRT data collection flow chart



Increasing the number of NRT stations and instruments

- Follow-up on stations that have NRT upload procedures ready.
- Take one instrument type at a time, focus first on nephelometers, then absorption photometers, then MPSS.

Within ACTRIS WP3, we should provide & share DAQ software that:

- collects data from instrument
- displays incoming data graphically,
- writes data to hard drive in level 0 format
- uploads hourly level 0 files to NRT account at NILU.
- auto-start of the software, e.g. after a power failure.

Need volunteers to write, provide, and maintain such software!!!

Increasing the number of NRT stations and instruments

Volunteers:

Instrument	Responsible
TSI 3563 nephelometer	NILU (ready!)
ECOTECH nephelometer	U. Crete
MAAP	TROPOS
Magee AE31	NILU
Magee AE33	NILU
Radiance Res. PSAP	NILU
TROPOS SMPS	TROPOS
Custom DMPS / SMPS	Stations themselves

Near-Real-Time Reporting for Reactive Gases!?

NO_x:

- Technically, NO_x data can be phased into the ACTRIS NRT infrastructure.
- Previous efforts (MACC) need to be considered.
- Who will be doing the processing, or specify the SOP for NRT processing?

VOCs:

- “NRT” VOC submission would in fact be rapid delivery, suitable for validation, but not operational services.
- NRT data submissions don't receive feedback – import only when 100% correct.
- VOC rapid delivery would need dedicated tool for stations to submit 100% correctly formatted files.

Take Your TSI 3563 NRT Now!

- Software runs on LabView 2014, needs LabView 2014 Run-time driver and LabView VISA driver (for COM ports). Both are bulky, but free of charge.
- Go to <ftp://ftp.nilu.no/Pub/mf/>, download the respective downloaders to your DAQ PC, download the drivers, and install them on your DAQ PC.
- From <ftp://ftp.nilu.no/Pub/mf/>, download the whole “[TSI 3563 log v0.0.1](#)” folder, and place it in that folder containing the DAQ software on your PC.
- From the “[TSI 3563 log v0.0.1](#)” folder, take the “[NILU TSI 3563 control v0.0.1.config.Example.20151030.ini](#)” file, rename it “[NILU TSI 3563 control v0.0.1.config.<station name>.<date>.ini](#)”, and move it to “C:\NILU_DAQ\NILU_TSI_3563_log_v0.0.1\”. Open the file, and adapt it to the configuration at your station and your metadata.
- In “C:\NILU_DAQ\NILU_TSI_3563_log_v0.0.1\”, make a copy of the edited file, and name it “TSI_3563_control_v0.0.1.config.current.ini”.
- Run the program, and add it as scheduled task at system boot for auto-start after power failure.