



ICOS ancillary data workshop

Gembloux, September 2015



OVERVIEW OF THE PROTOCOLS

12:00 – 13:00	lunch offered at University Restaurant
13:00 – 13:15	welcome word (Marc Aubinet and Bert Gielen)
13:15 – 15:30	overview of the protocols (including spatial sampling design, theoretical background of methods, temporal sampling design, ...) <ul style="list-style-type: none">- Forests (Bert Gielen)- Grasslands (Maarten Op de Beeck)
15:30 – 16:00	coffee break
16:00 – 16:30	Presentation of the Walloon ecosystem sites: Vielsalm, Lonzee and Dorinne (Marc Aubinet)
16:30 – 16:50	Presentation of the Flanders ecosystem sites: Brasschaat, Lochristi and Maasmechelen (Marilyn Roland)
16:50 – 17:30	overview of the protocols; continued <ul style="list-style-type: none">- Croplands (Bert Gielen)
17:30	beer tasting offered by the University of Liege in the park or monastery of the faculty depending on the weather

DAY 2: TUESDAY SEPTEMBER 8TH

FIELD VISITS

The sampling protocols will be demonstrated at the sites. The group will be split into two: one group for the forest site PI's and one group for the grassland and cropland site PI's. The forest group will visit the forest site in Vielsalm. The other group will visit the cropland site near Gembloux and the grassland site in Dorinne. Transport to the field and lunch will be foreseen.

FOREST:

08:30 – 10:30	pick up by bus at “Hotel 3 Clés”. Transfer to Vielsalm forest site
10:30 – 12:30	demonstration of sampling protocols <ul style="list-style-type: none">- Spatial sampling design- DBH and tree height measurements- Litter traps- Vegetation sampling- Automatic dendrometers- Fieldmap to map all trees and measurement devices in the field
12:30 – 13:30	lunch (will be foreseen)
13:30 – 16:00	continue demonstration of sampling protocols
16:00 – 18:00	pick up by bus at forest site. Transfer back to Gembloux
19:00	Social dinner at the restaurant of Best Western hotel "Les 3 Clés" (offered by ETC Antwerp)

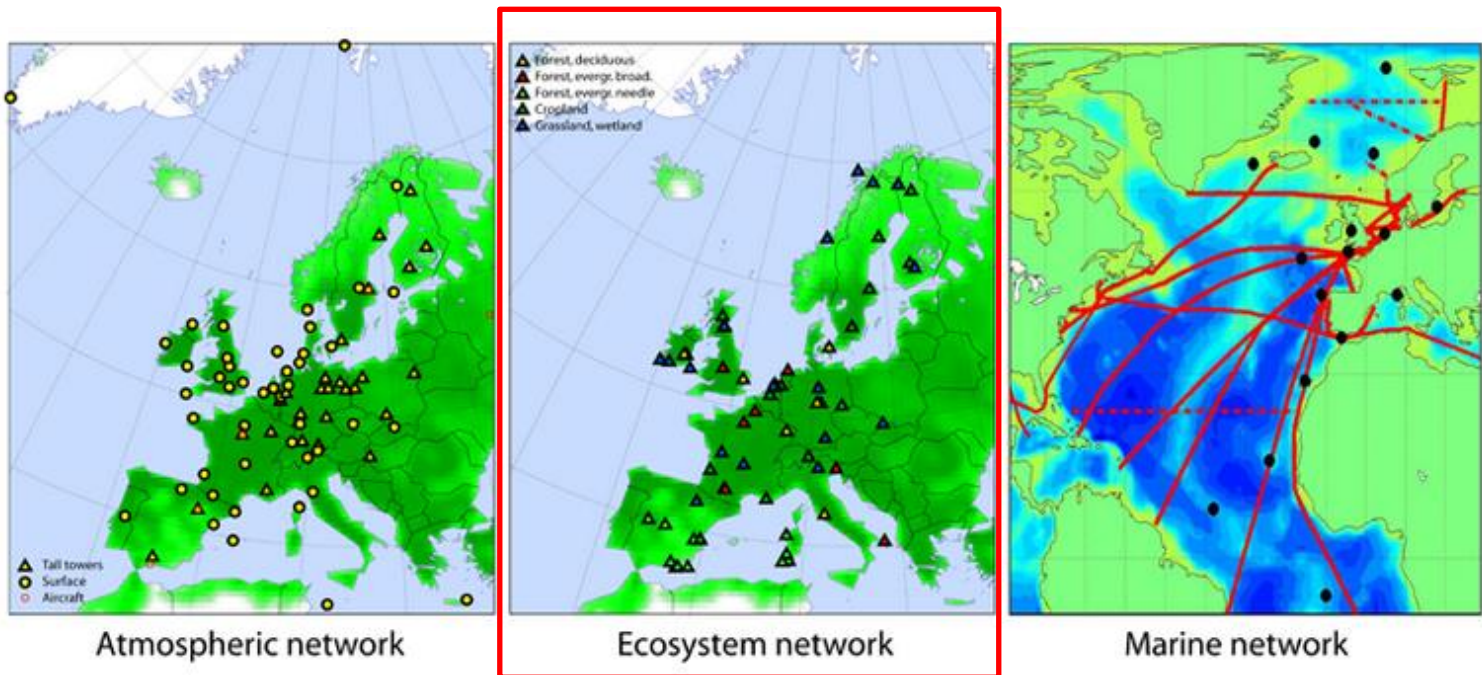
CROPLAND AND GRASSLAND:

09:00 – 10:00	pick up by minibus at Hotel “Les 3 Clés”. Transfer to cropland site
10:00 – 12:00	demonstration of sampling protocols <ul style="list-style-type: none">- Spatial sampling design- Ceptometer- Destructive harvest for AGB and PAI
12:00 – 13:00	lunch (will be foreseen)
13:00 – 14:00	transfer by minibus to Dorinne grassland site
14:00 – 17:00	demonstration of sampling protocols <ul style="list-style-type: none">- Spatial sampling design- Ceptometer- Plate measurements- Destructive sampling for AGB and PAI- Grazing exclusion
17:00 – 18:00	pick up by minibus at grassland site. Transfer back to Gembloux
19:00	Social dinner at the restaurant of Best Western hotel "Les 3 Clés" (offered by ETC Antwerp)

OVERVIEW DATA TRANSMISSION

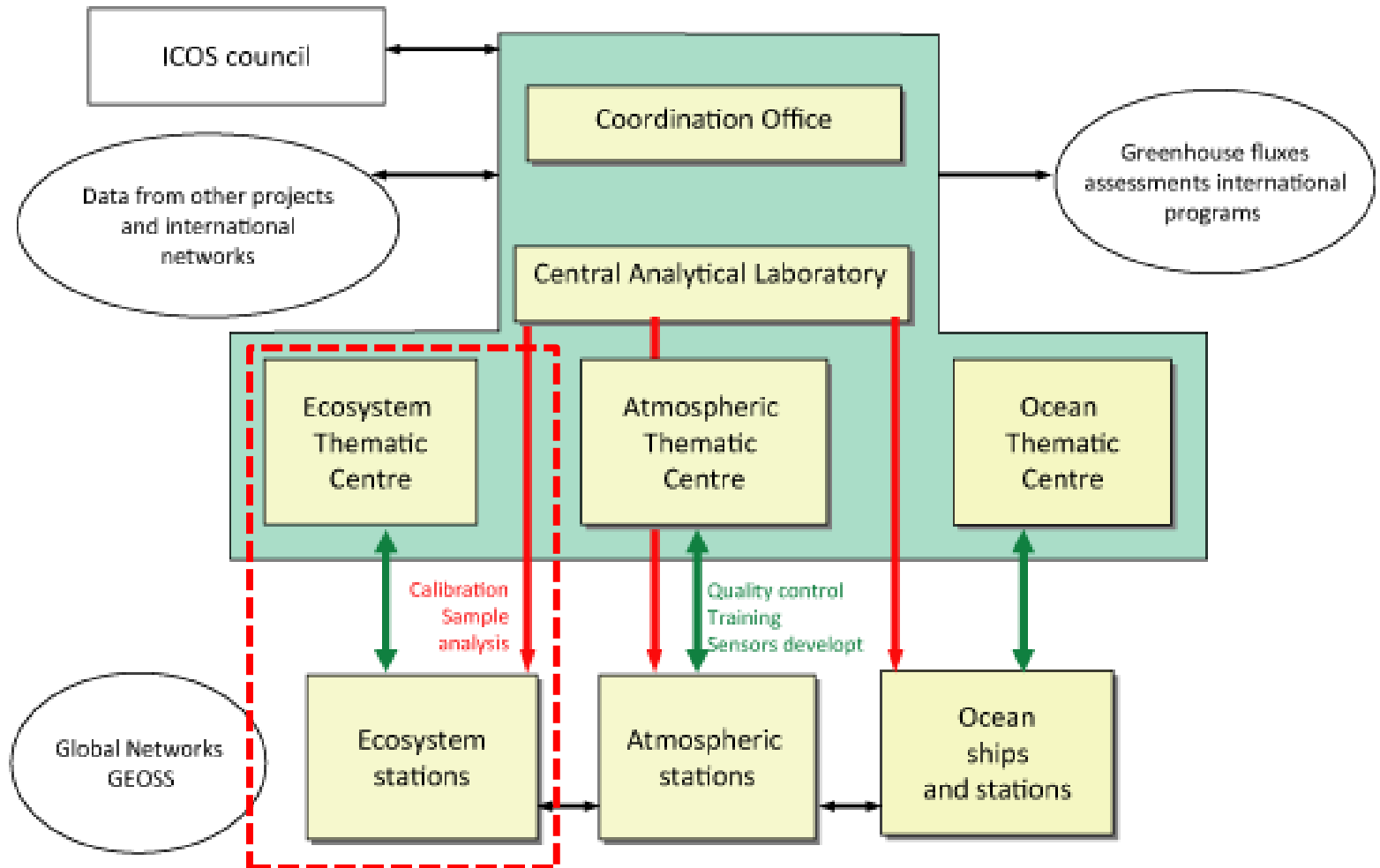
9:00 – 10:30	session on data transmission and file formats including demonstration of the processing tool for hemispherical pictures (Emmy Jacobs)
10:30 – 11:00	coffee break
11:00 – 12:00	demonstration of the calibration of the digital camera for the hemitool and demonstration of lab measurements (Maarten Op de Beeck and Bert Gielen)
12:00 – 12:30	wrap up

ICOS: A European research infrastructure dedicated to high precision monitoring of greenhouse gas fluxes



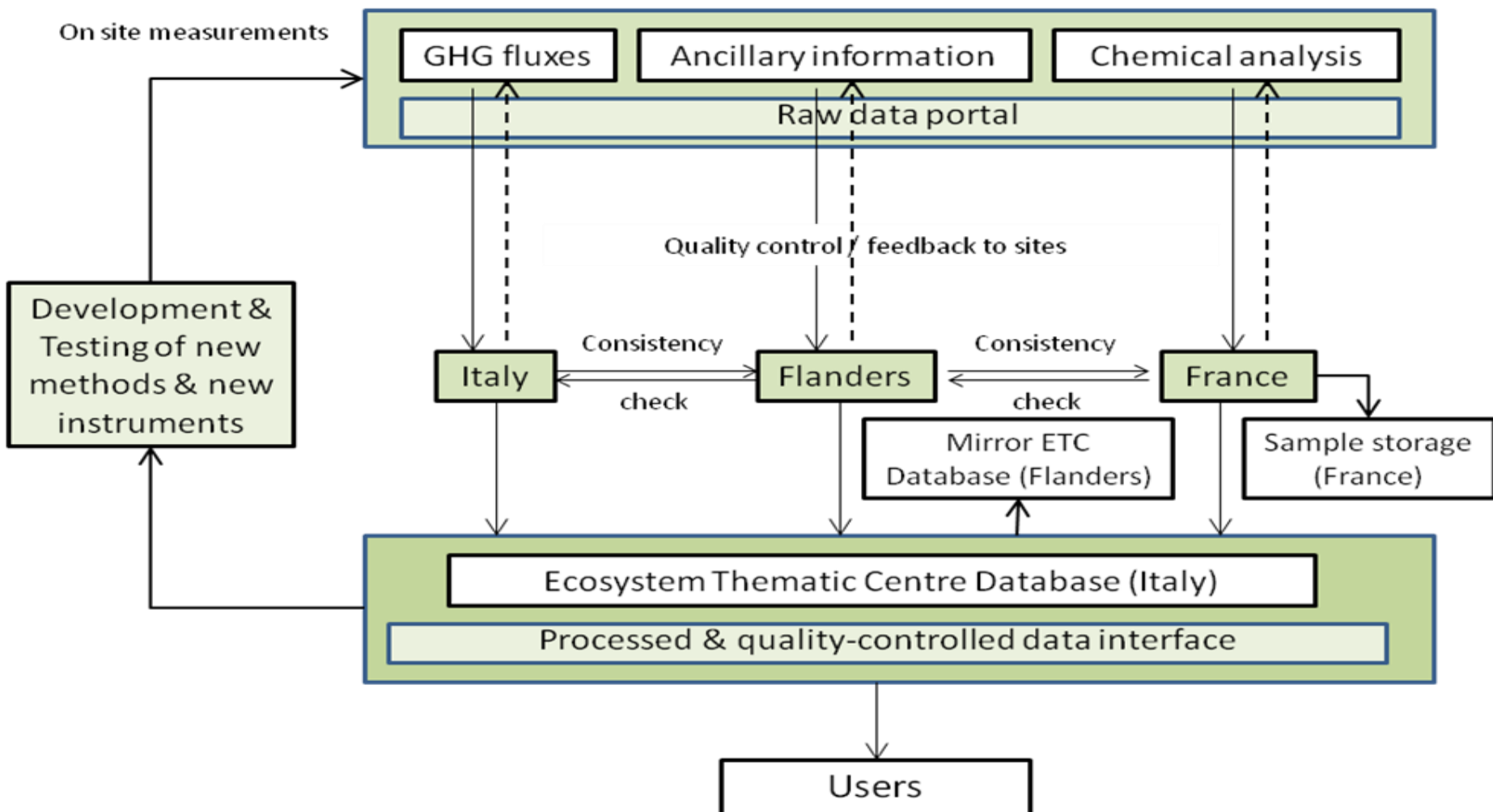
Three main components: Atmospheric, Ecosystem, Marine network

Structure: a coordination office+portal, four central facilities





Ecosystem Thematic Center organization



Current state of the Ecosystem network



- ✓ Ready to go operational in late 2015
- ✓ 34 candidate CLASS 1 and CLASS 2 site
- ✓ 20 candidate CLASS 3 sites in
- ✓ 8 founding member Countries

(Belgium, Finland, France, Germany, Italy, Norway, Sweden, Switzerland)

- ✓ +20 sites in 4 countries (UK, Netherlands, Czech Republic, Poland) applied for funding

Mandatory Measured parameters at the ICOS Ecosystem Stations

continuous:

- ✓ CO₂, H₂O, CH₄, N₂O, sensible heat fluxes;
- ✓ CO₂ and H₂O vertical profiles
- ✓ Dew point mirror;
- ✓ All radiation components:
- ✓ vertical temperature and relative humidity profile;
- ✓ Rain and snow precipitation (+ WMO precipitation)
- ✓ Snow height
- ✓ Soil water content profiles
- ✓ Soil temperature profiles
- ✓ Air pressure
- ✓ Trunk and branches temperature
- ✓ Groundwater level
- ✓ Wind speed and direction;
- ✓ Back up meteo station (Ta, Rh, SWin, Precipitation)

periodic, yearly:

- ✓ Biomass (above ground);
- ✓ Soil carbon content;
- ✓ Litter fall;
- ✓ Leaf N content;
- ✓ C and N in/out on managed sites;

periodic, daily to monthly:

- ✓ LAI;
- ✓ Trees diameter;
- ✓ Soil respiration (chamber);
- ✓ CH₄, N₂O (chambers);
- ✓ Phenology;

protocols

- List of currently developed protocols:
- IRGA (Marc Aubinet)
- Sonic Anemometer (Hape Schmid)
- EC Setup (Corinna Rebmann)
- Storage calculation (CO₂, H₂O, CH₄ and N₂O) (Leonardo Montagnani)
- Automatic chambers (CO₂, H₂O, CH₄ and N₂O) (Marian Pavelka)
- Soil Sampling and Analysis (Dominique Arrouays)
- Plant Sampling and Analysis (Denis Lousteau)
- **Ancillary Data (Forest, Grassland, Cropland, Mires) (Bert Gielen and Maarten Op De Beeck)**
- Soil Climate Variables (Maarten Op De Beeck)
- Radiation (Sebastien Biraud)
- Lateral Fluxes (Matthew Saunders)
- Precipitation (Sigrid Dengel)
- Phenological Cameras (Lisa Wingate)
- Data Processing (Simone Sabbatini)
- QAQC non EC data (Maarten Op De Beeck)
- Priorities (Bert Gielen)
- Site Characterization (Matthew Saunders)
- Non-CO₂ manual chambers (Ralf Kiese)
- Non-CO₂ EC (Eiko Nemitz)
- Air Temperature and Relative humidity (Nicolas Arriga)