



Central Radiocarbon Laboratory - activity report -

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ICOS Annual Meeting Kiel

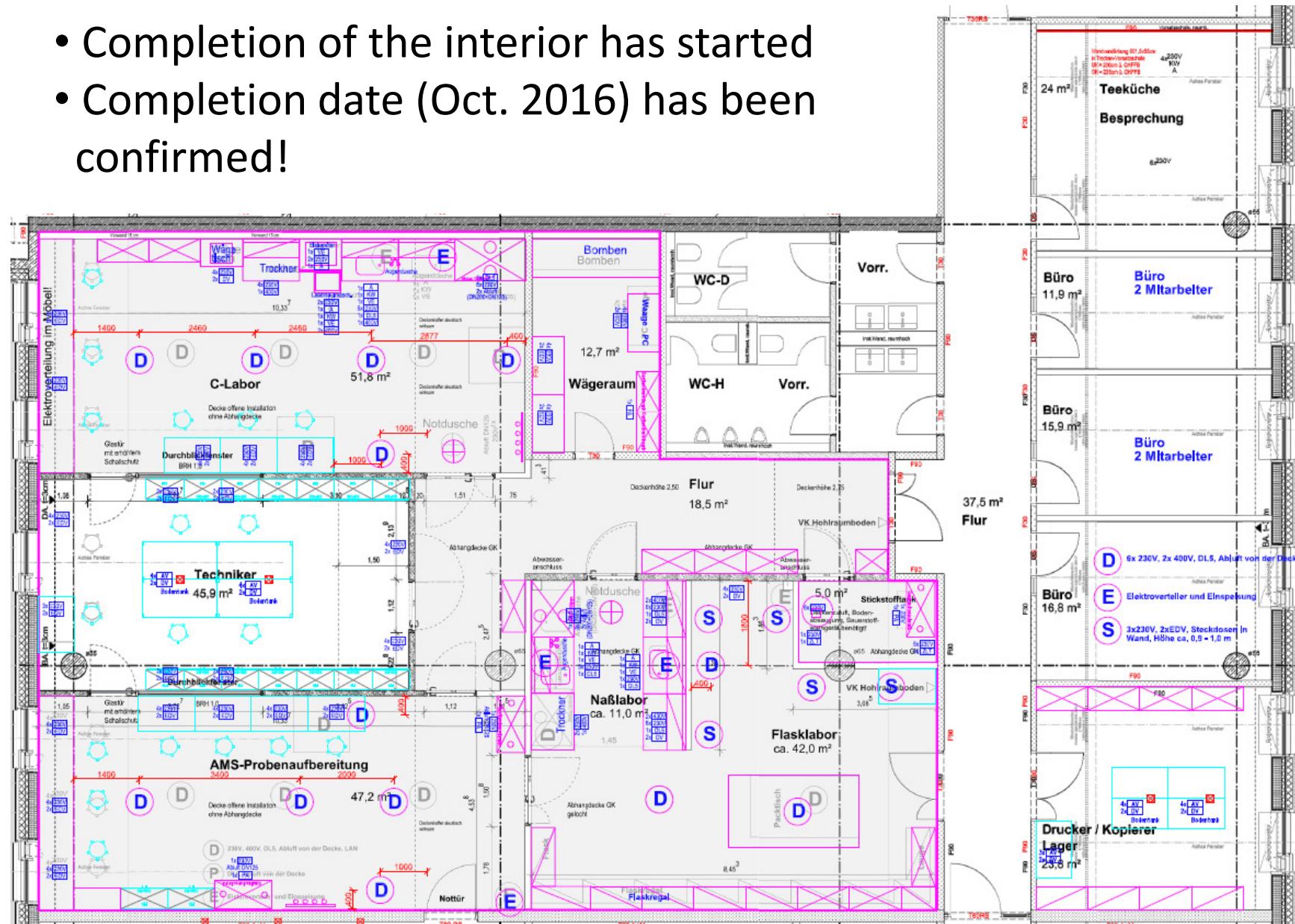
May 18-20, 2016



Bundesministerium
für Bildung
und Forschung

New CRL premise: planning is finalised

- Completion of the interior has started
- Completion date (Oct. 2016) has been confirmed!



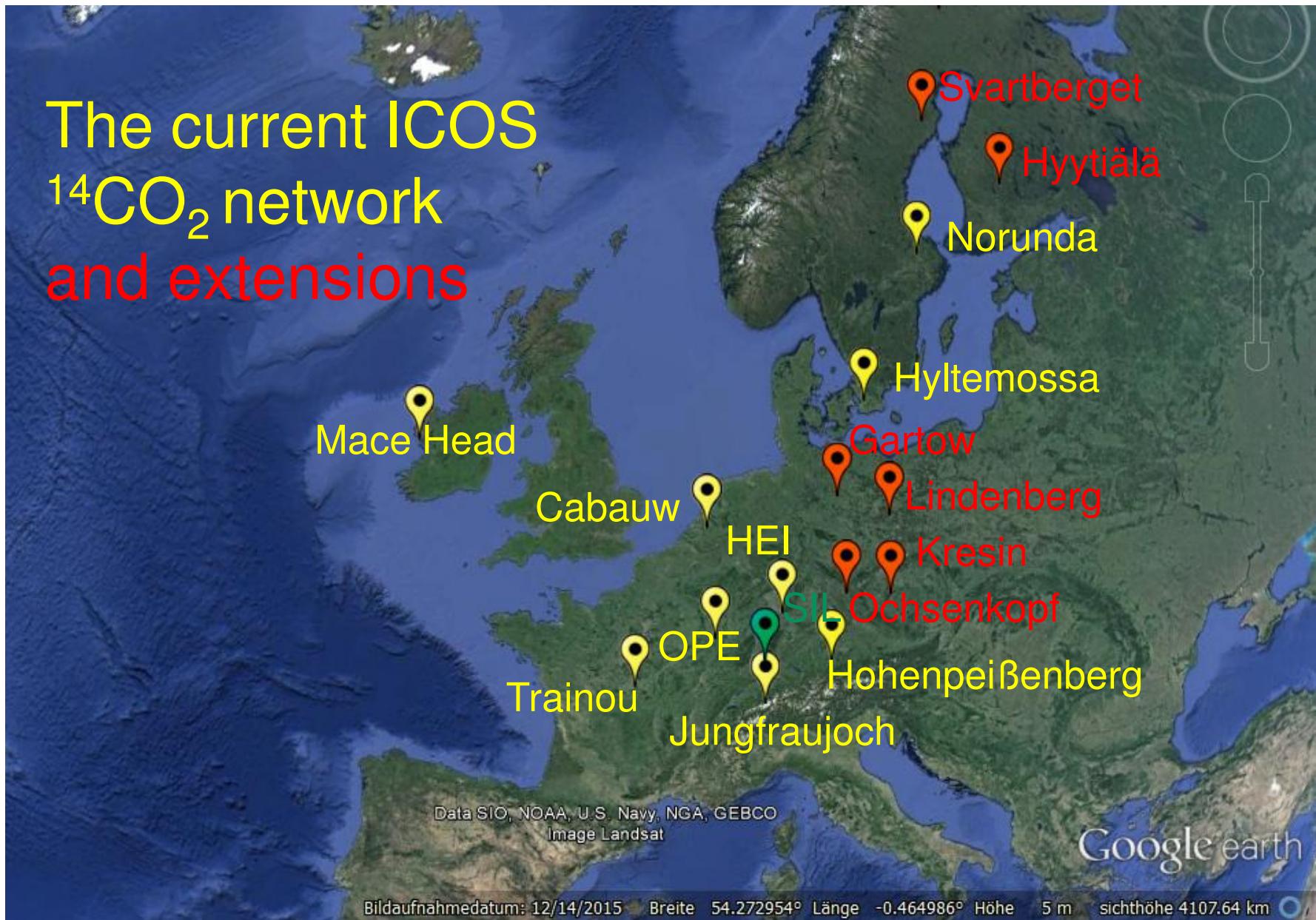
- Final assembly of the CO₂ extraction and graphitization line in the workshop is ongoing.

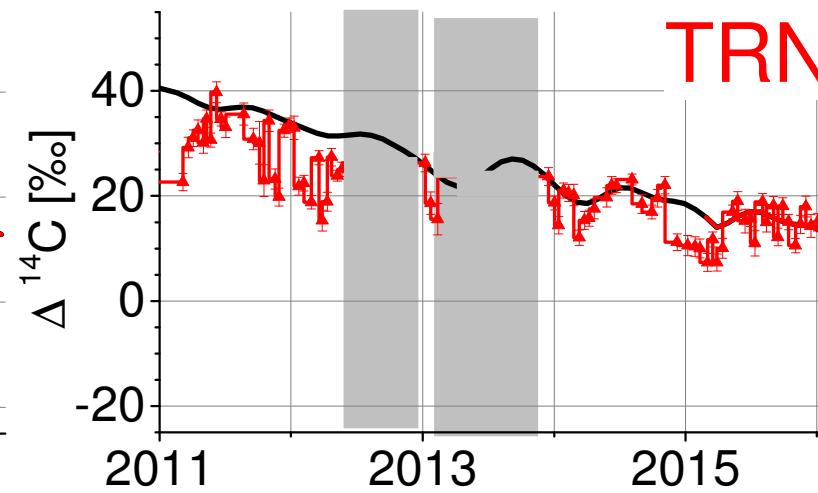
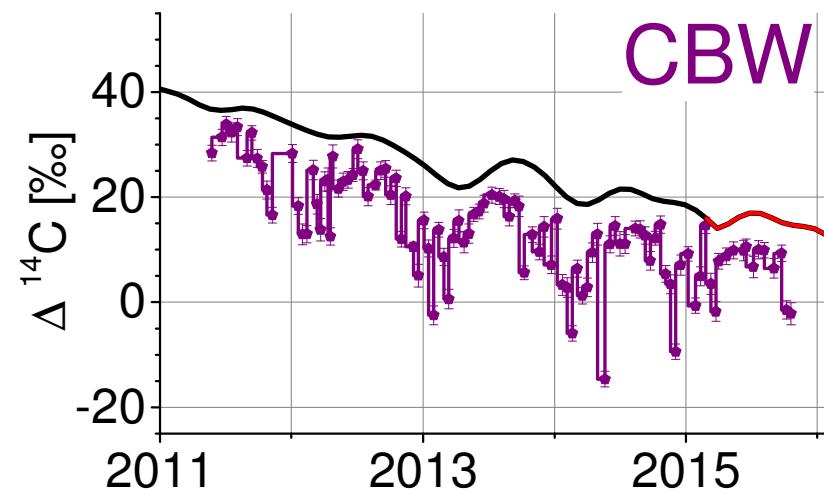
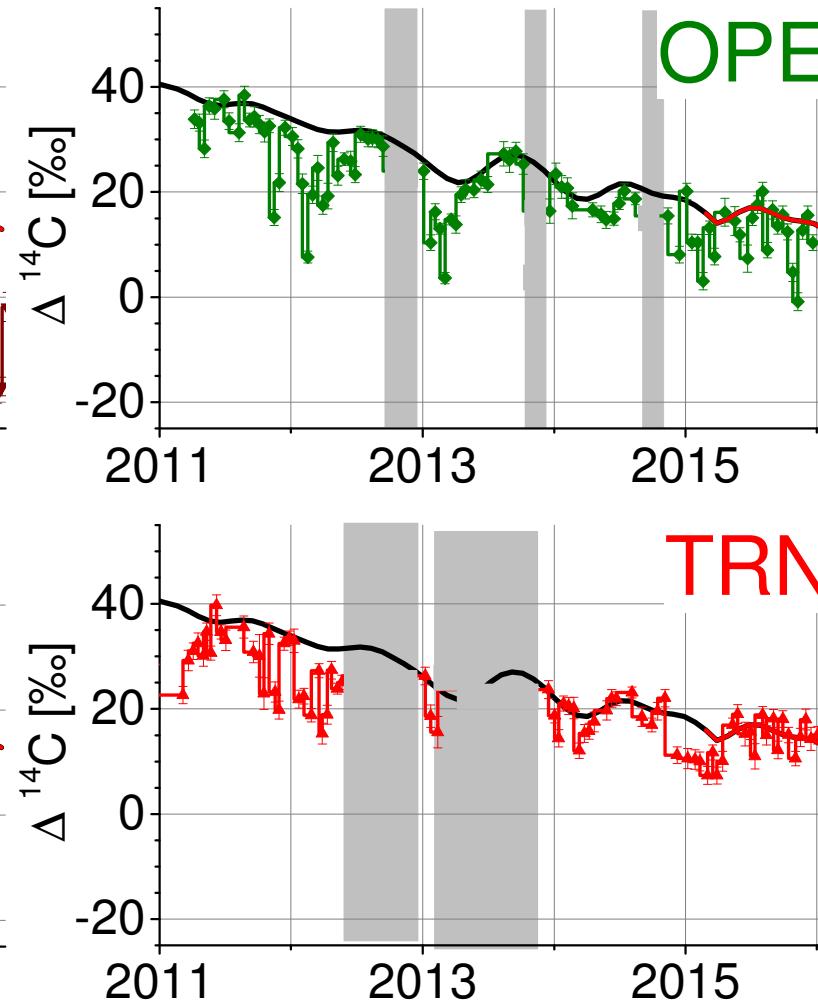
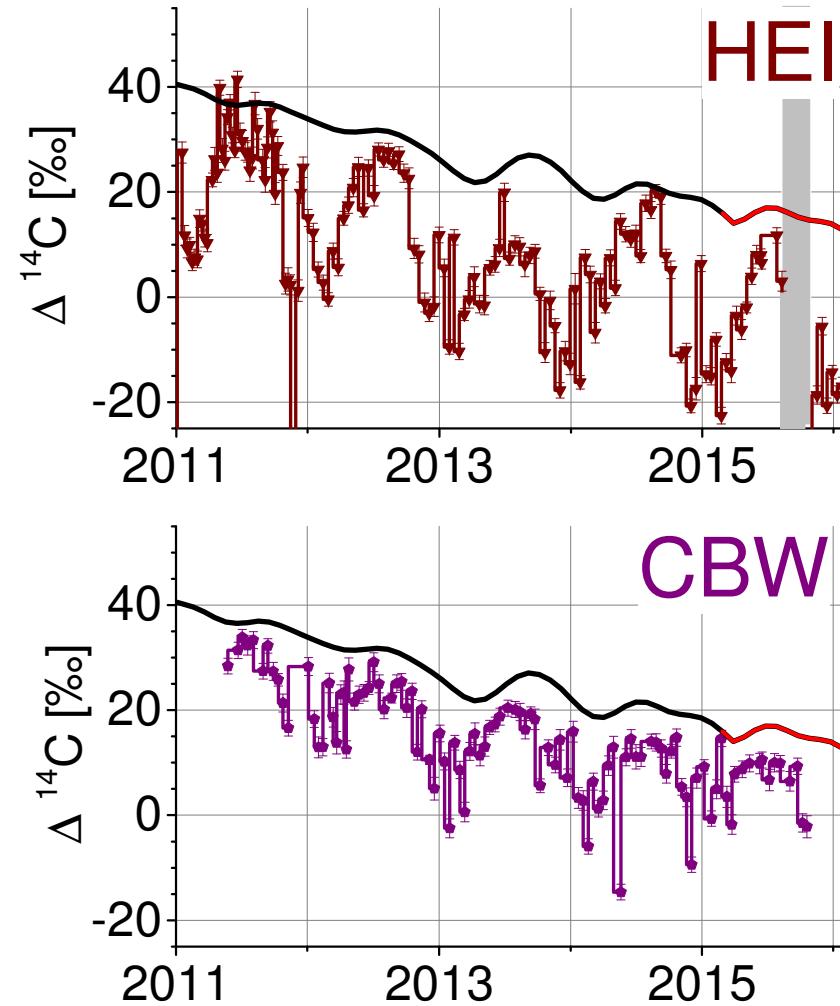
Testing of the prototype and resulting design adaptation lead to delays in instrument completion



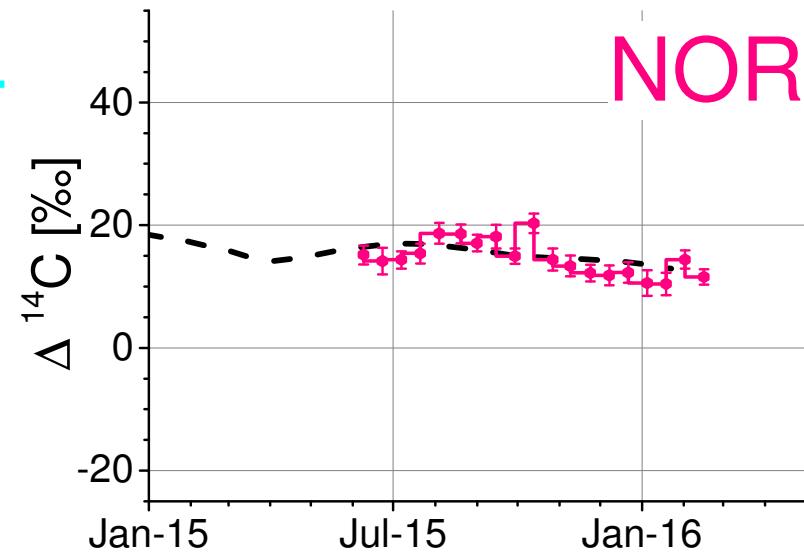
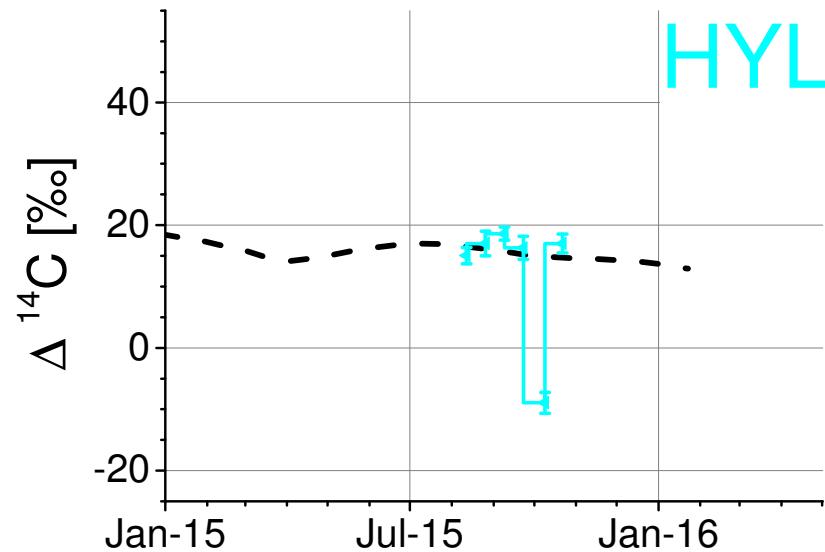
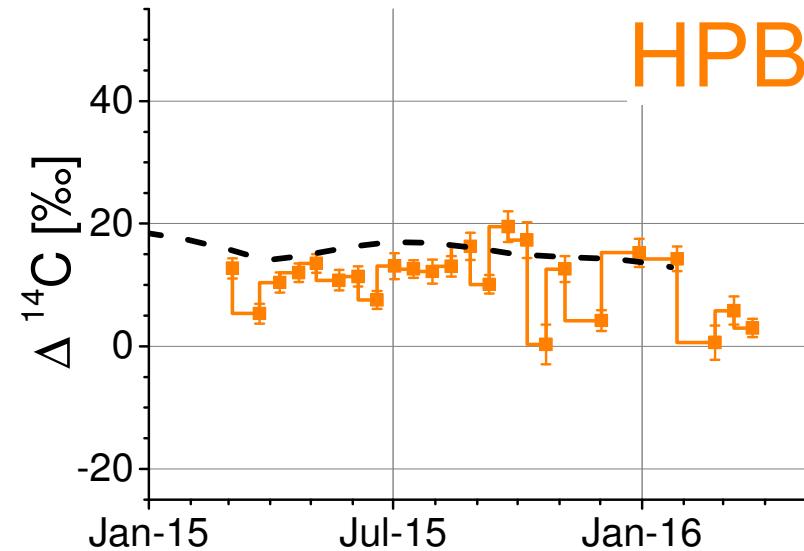
- Control software is being implemented in parallel (more than 50 valves & ca. 70 sensors)

The current ICOS $^{14}\text{CO}_2$ network and extensions

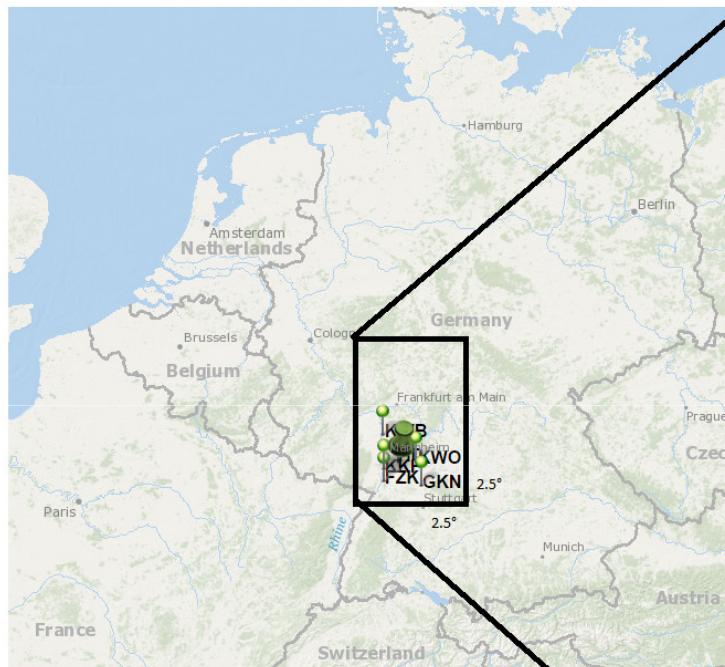




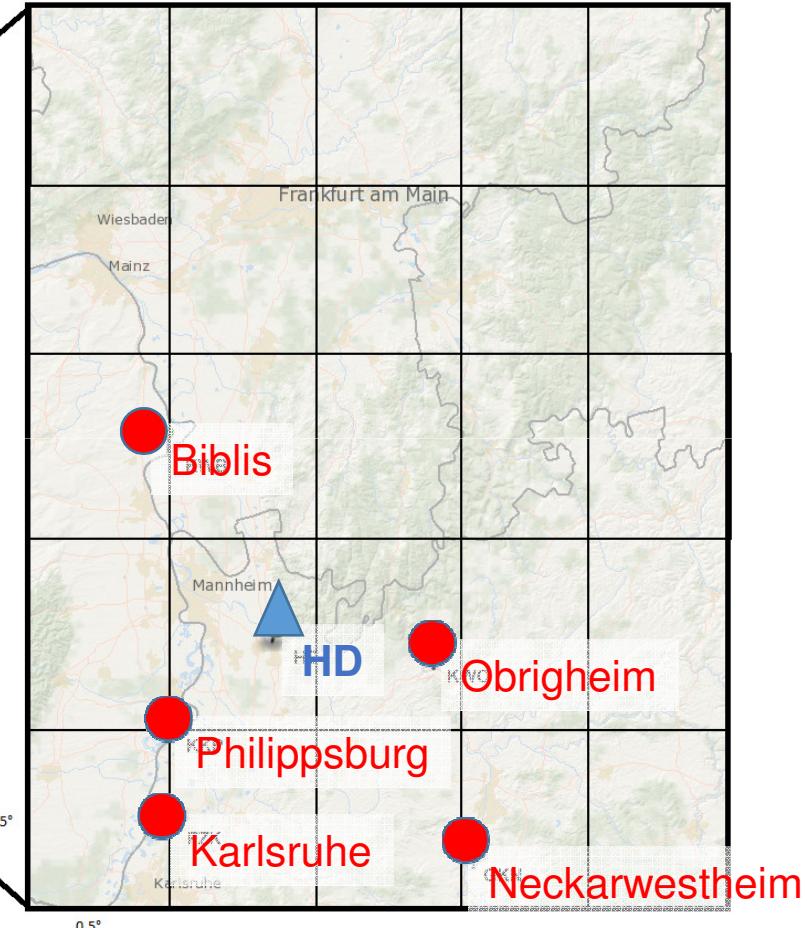
Scandinavian stations'
 $^{14}\text{CO}_2$ level very close
to background

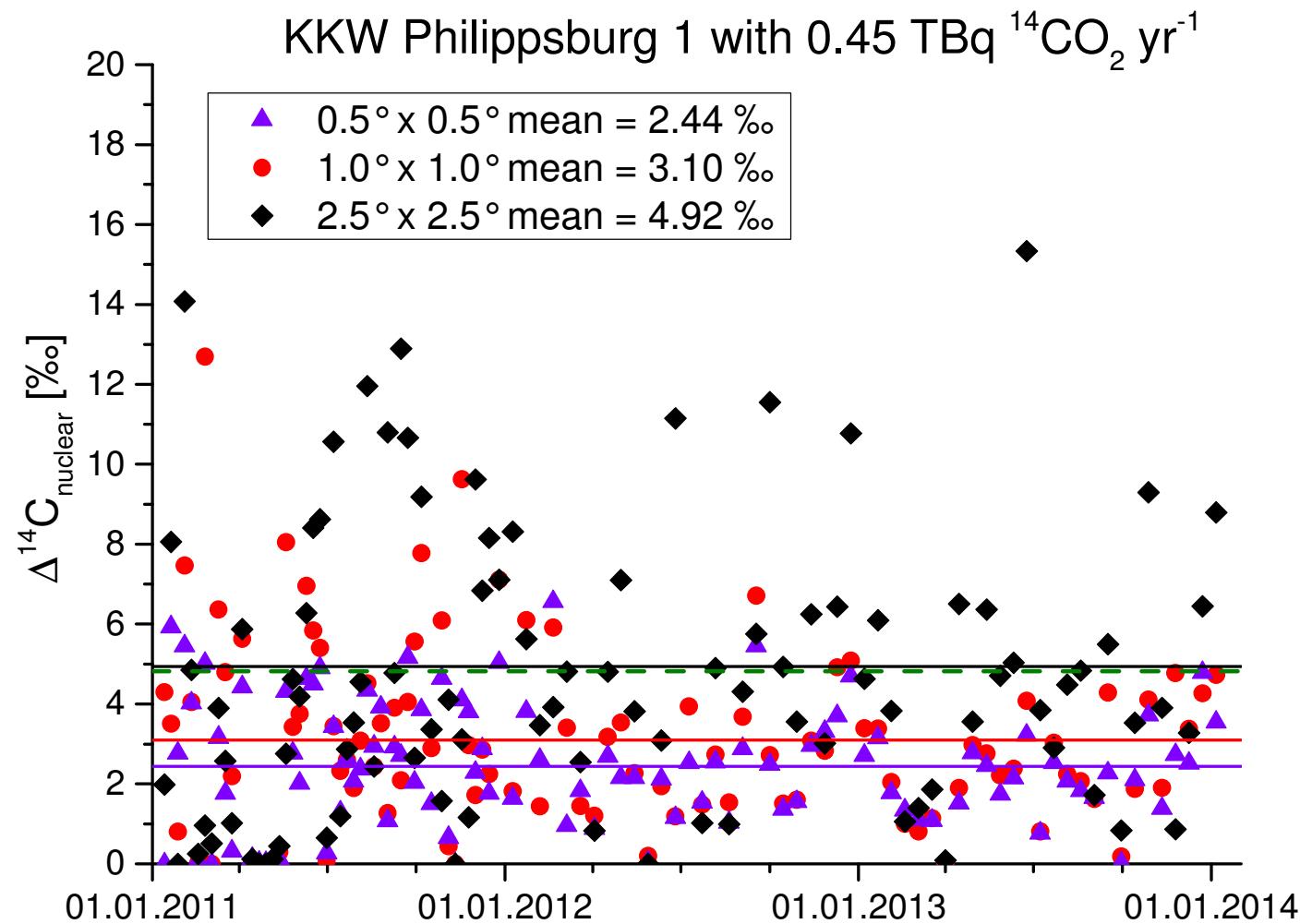


New correction for $^{14}\text{CO}_2$ contamination from nuclear facilities in Heidelberg

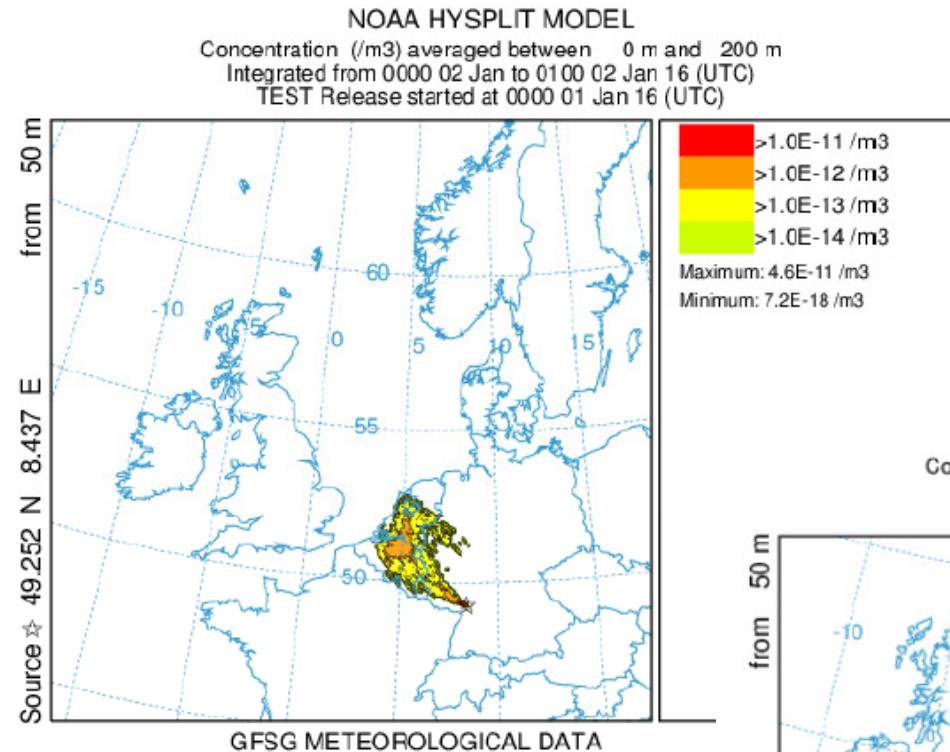


Five nuclear installations
in ≤ 55 km distance from
Heidelberg sampling site



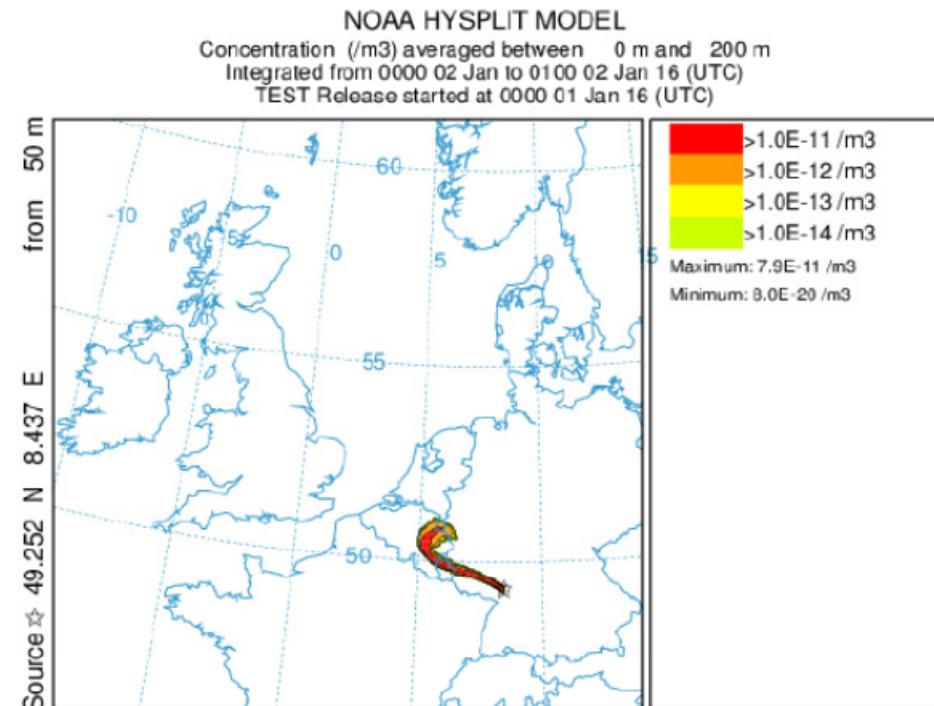


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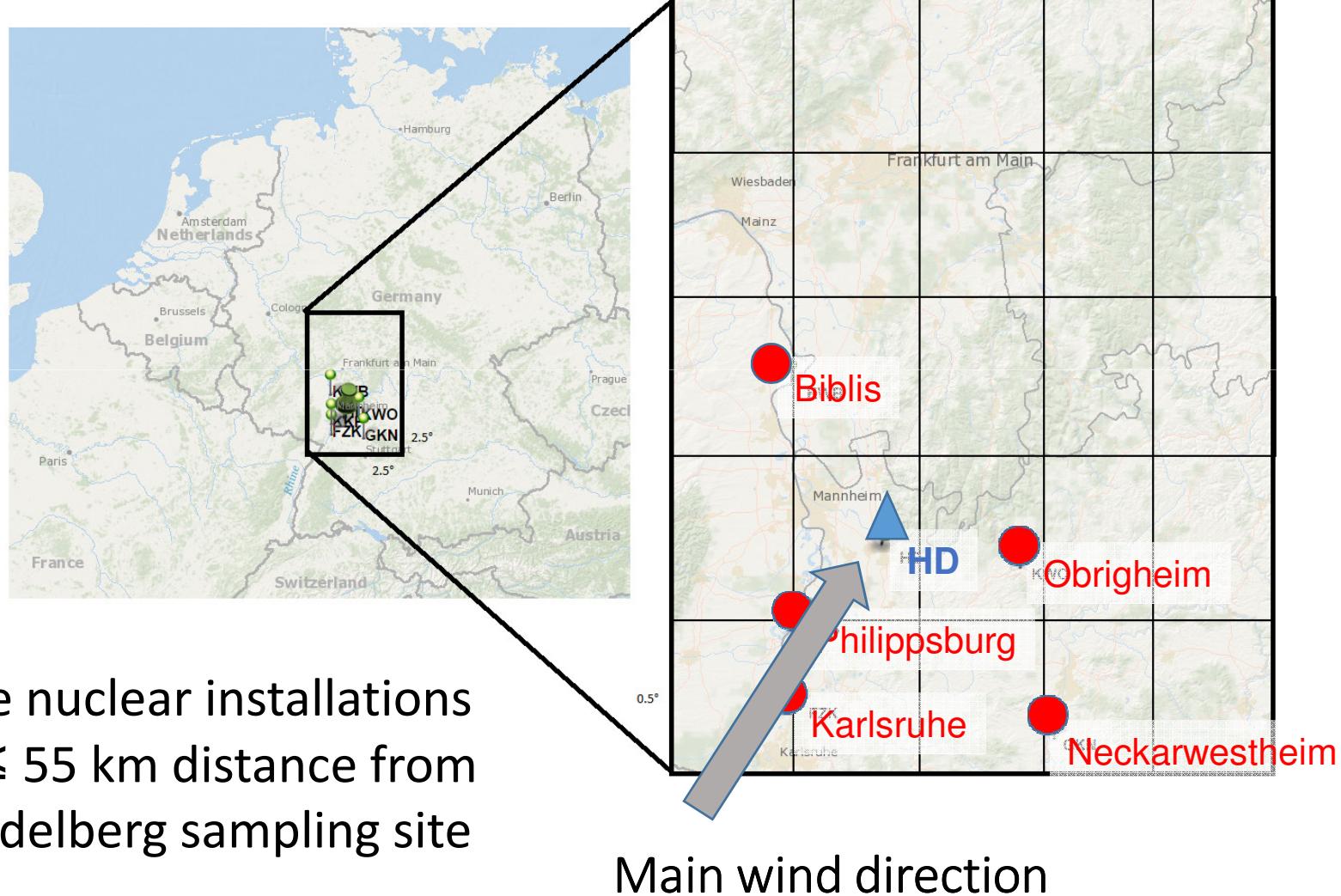


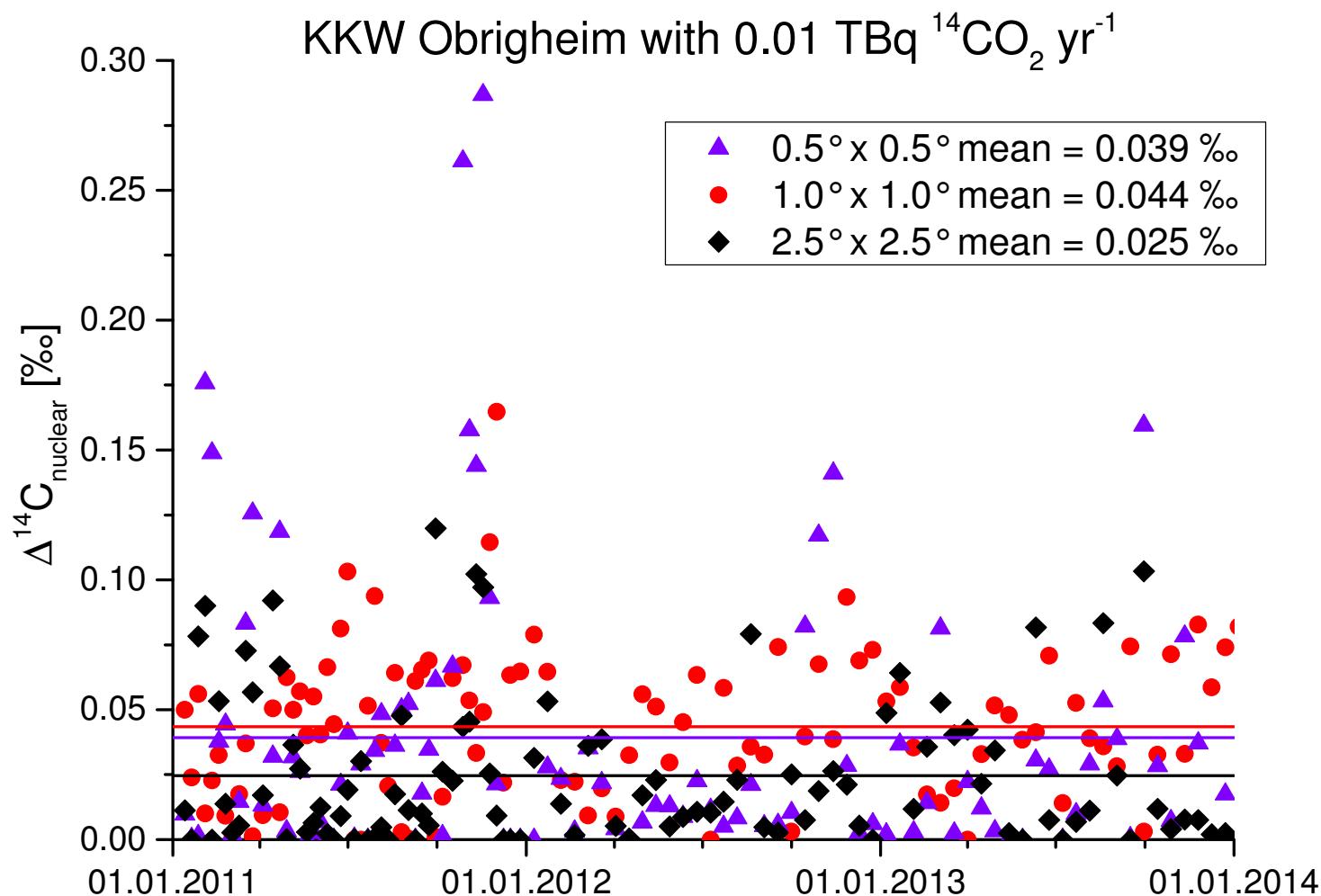
More confined plume in HYSPLIT with lower resolution wind field (NCEP/NCAR reanal.: 2.5° x 2.5°)

More dispersion in HYSPLIT with higher resolution wind field (Gdas0p5: 0.5° x 0.5°)



New correction for $^{14}\text{CO}_2$ contamination from nuclear facilities in Heidelberg



New correction for $^{14}\text{CO}_2$ contamination
from nuclear facilities in Heidelberg

- CRL premises (laboratory in an office building) under interior construction. Date of move foreseen for October 2016.
- Some delays in instrument construction and database/evaluation tool finalization.
- CRL services for the ICOS network are operational:
 - > 300 conventional $^{14}\text{CO}_2$ samples processed in 2015
 - 13 conventional $^{14}\text{CO}_2$ samplers built and delivered to the ICOS network
- Fossil fuel determination using integrated sampling is challenging for some ICOS class 1 stations. Nonetheless, these measurements are important to monitor long-term continental FFCO₂ changes.
- Correction of $^{14}\text{CO}_2$ contamination from NPPs improved through dedicated Hysplit model estimates.
- New FFCO₂ sampling strategies for Europe to be elaborated in EU-H2020 proposal RINGO.

Thank you !

