## InGOS – Integrated non-$CO_2$ Observing System

Detailed workplan, appendix to the online application. Request for access to an infrastructure (TNA1-TNA2-TNA3). The plan must not exceed 6 pages in 12 pt single line spacing, applications exceeding this limit will not be evaluated. The following information should be included in order to be evaluated:

1. **Project name (acronym), name and contact information of the researcher(s), duration of the project (dates, number of working days), type and name of the infrastructure requested**

   **Project Name:** Soil N2O chamber inter-comparison campaign 2014, Hyytiälä, Finland

   **Contact information**: Jiri Dusek (dusek.j@czechglobe.cz), Eva Darenova (darenova.e@czechglobe.cz)

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   **Duration of the project:** June 22 to 28 2014 (7days)

   **Infrastructure request:** Hyytiälä Forestry Field Station, Finland

2. **Background**
   a. Significance of the research

      The campaign will allow comparing different types of chamber systems. Comparison will be realized using calibration tank with known N2O flux under replicable conditions. The comparison will also include calculation of measurement uncertainty and systematic error of calculated fluxes.

   b. Previous research relevant to the topic and how the proposed project links to this

      Soil N2O chamber inter-comparison campaign follows on a similar inter-comparison campaign in 2011 within the FP7 ICOS project. This campaign was focused on instrumentation for eddy covariance flux measurements of N2O and also follows INGOS NA5 N2O instrument inter-comparison campaign of fast-response N2O analysers currently available on the market.

c. Links with current research of the applicant

Global Change Research Centre AS CR, v.v.i. (GCRC) has in operation 6 ecosystem stations included in the ICOS network. Both applicants have used chamber technique for gas emission measurements at these sites. Participation in the present campaign will be necessary for the right data processing and its evaluation in future.

**3. Objectives**

a. Hypothesis and research objectives

The inter-comparison campaign will allow assessing measurement accuracy and precision. Flux measurements will be associated with systematic and random uncertainties. Campaign will enable us to assess their performance in a right measuring of gasses emissions from different ecosystem sites

b. Connection with the InGOS objectives and the 'fitness' of the use of the requested infrastructure to the objectives

This project is part of NA5 activities in Annex I.

**4. Methods and materials (legal and ethical issues)**

Chambers will be tested individually or in several groups if their size allows it. Reference fluxes from the calibration tank will be calculated and measured independently to test the emission chambers. The final concentrations will be determined with using gas chromatography and continuous laser analyzer (LosGatos, Picarro or other available). Emission data will be analysed individually with own methodology and in parallel following a common protocol of the InGOS.

**5. Implementaton: timetable, budget, distribution of work**

a. Timetable for the research including personnel efforts, favorably table wise

Jiri Dusek and Eva Darenova (GCRC) will visit the Hyytiälä Forestry Field Station from June 22 to 28 2014 for three own chambers comparison and testing. Two chambers are automatic and one is manual. Basal diameters of chambers are 30, 40 and 51cm.

b. Total budget for travel and logistical support as requested

For the campaign setup, the plan is to send equipments (chambers) two weeks before campaign starting. Applicants will plan to flight to Helsinki on 22 June 2014 and flight

to back on 28 June 2014. The estimated costs are of the order of 400 Euro/person for a return trip.

We will also require 2 nights' accommodation in Tampere (at the beginning and at the end of our visit, 2x100 Euro=200 Euro) and four nights in the Hyytiälä Forestry Field Station (60 Euro per day =2x240 Euro=480 Euro). The budget requested for this project is: travel costs 2x400 Euro=800 Euro and subsistence for 2 people for 7 days 2x350=700 Euro, 2x100 Euro=200 Euro and 2x240 Euro=480 Euro Total budget 2180 Euro.

## 6. Expected results and possible risks

a. Expected scientific impact of the research and applicability and feasibility of the research results

   It is expected that the obtained results and experiences with different chambers will provide a reference and standards for N2O flux measurements using chamber techniques to the to the whole flux community.

b. Publication plan
   To be decided.

c. Data access plan
   Results of the comparisons will be submitted to the InGOS methodology approaches.