# InGOS – Integrated non-CO2 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: ICOS Mobile Laboratory Audit for N20, CH4, CO and CO2

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Project duration: The audit including the intercomparison measurement takes approximately seven weeks between 15.1. and 6.3.2015. The installation and dismantling need one-week-long visits to the station at the beginning and at the end of the campaign. Rest of the time the instruments are under remote controlling. In total, 14 working days at the station per person.

Site: TNA2 station Jungfraujoch (JFJ), Switzerland

1. **Background**

Measurement of the greenhouse gases at JFJ are performed by the Air Quality/Environmental Technology Laboratory at the Swiss Federal Laboratories for Materials Testing and Research (EMPA). EMPA operates a Quality Assurance/Science Activity Centre (QA/SAC) and the World Calibration Centre for Surface Ozone, Carbon Monoxide and Methane (WCC-EMPA) in the framework of Global Atmosphere Watch. The laboratory’s main expertise is ambient air monitoring (greenhouse and reactive gases, particles), the associated QA/QC activities, as well as air quality database systems.

Mobile Laboratory under the ICOS Atmospheric Thematic Centre is a part of ICOS internal quality control. The main purpose of the MobileLab is to ensure the high quality measurements and data of atmospheric stations by helping the station personnel to achieve and maintain the high level of station’s operation. In practice, the MobileLab performs audit visits to the stations in order to evaluate the data quality of the station and to find out the possible ways to improve the station’s performance.

The audit at the JFJ will benefit both organisations. Greenhouse gas measurements of the JFJ station will be evaluated by external organisation and results published in an official report. And the audit of a station as JFJ, run by highly experienced operators, will serve a valuable reference also for ICOS Mobile Laboratory.

1. **Objectives**

The objective of the audit is to verify the high standards of N2O, CH4, CO, and CO2 measurements of both JFJ station and Mobile Laboratory instruments. Audit includes also cross-measurement of calibration gases to ensure, that there are no biases on calibration levels.

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

For the campaign Mobile Laboratory will bring two instruments, Picarro G2401 CRDS and Ecotech FTIR, and calibration gases to the JFJ station and measure together with local instruments. These are state-of-the-art instruments for greenhouse gas measurements and calibration gases are made against the WMO CCL scale.

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

Following timeline illustrates the schedule for the audit.

Budget for audit, two persons: 500€ for traveling/person, 14 days x 50€ for subsistence/person, total 2400€.

1. **Expected results and possible risks**

The results will be published as an ICOS audit report to demonstrate the performance of the JFJ station and Mobile Laboratory capabilities for greenhouse gas measurements. Report will also include recommendations in case of improvable in measurements quality. The Mobile Laboratory procedures and quality characteristics will be published also as a peer reviewed international journal article.

Data as well as the report of the audit/intercomparison measurement will be available at the database of ICOS Atmospheric Thematic Centre.