

# NDACC Measurements Protocol

## Introduction

A measurement location that hosts one or more NDACC-affiliated instruments is designated as an NDACC Station. A listing of NDACC-certified instrument types can be found on the NDACC web site <http://www.ndacc.org/> where the NDACC Measurements and Analyses Directory can also be accessed. This directory provides information about past and current measurement activities.

NDACC recognizes the challenges associated with obtaining a global representation of the atmosphere using a limited number of ground-based measurements. Thus, the addition of measurement activities to the network is essential both to improve scientific understanding and to broaden the geographical base of observations in a certifiable way. This protocol outlines the procedure for such additions.

## Proposals for NDACC Affiliation

Principal Investigators (PIs) interested in having their measurement activities formally affiliated with the NDACC must submit a proposal to the NDACC Steering Committee (SC). Proposed measurements can be of one or more atmospheric species or parameters of network interest at either an already-existing NDACC station or at a new location. In all cases, the interested PI must identify a specific benefit to NDACC resulting from the geographical location of their instrument or an added science value (such as the measurement of additional molecules or parameters, or the use of a new measurement technique). Measurements may be proposed for either a specified period of time (e.g., for a particular campaign), or for open-ended, long-term studies. In the case of long-term measurements, the operational commitment must be of sufficient duration to allow for adequate trend determinations or geophysical analyses. PI's are expected to secure the resources needed for conducting the measurements and for analyzing the data from their own institution or from a specific funding agency.

Since NDACC is dedicated to conducting measurements of the highest quality, it is necessary that all measurement systems within NDACC conform to similar standards. Thus, the candidate PI must provide detailed information about the measurement system and analysis methods, together with a record of intercomparison activities for both. In addition, he or she should describe the quality control procedures that have been implemented thus far and must agree to the requirements detailed in the NDACC Data Protocol.

Communication between the candidate PI and the Co-Chairs of one or more of the NDACC Instrument Working Groups (IWGs) prior to formal proposal submission can be valuable in developing the application for affiliation and in initiating the validation process. The Co-Chairs of the NDACC SC can assist the PI in identifying the most appropriate IWGs.

In cases where the proposed measurements of interest are currently being conducted under the auspices of an existing independent network, it may be more appropriate to pursue the affiliation of that network as an “NDACC Cooperating Network.” Details regarding such affiliation can be found in the NDACC Cooperating Network Protocol.

### **Evaluation Procedure**

Upon receipt of a proposal for NDACC affiliation, the SC will conduct an evaluation as follows:

- 1) In the case where the measurement technique corresponds to one of the current NDACC instrument types (Dobson/Brewer, FTIR, lidar, microwave, sondes, UV/Visible, or spectral UV), the proposal will be evaluated by the corresponding NDACC IWG. The recommendations from that Working Group will be presented to the SC for final action.
- 2) In the case where the measurement technique is different from that of current NDACC instruments, the appropriate Working Group(s), either established or ad hoc, will evaluate the proposal and present their recommendations to the SC. If the proposed measurements are of species or parameters different from those currently addressed by NDACC, the appropriate Working Group(s) shall evaluate the benefit of such measurements to the network, as well as the calibration procedures to be used by the investigators.
- 3) In the case where the proposed measurement(s) will be conducted at an existing NDACC station, input from NDACC PIs making measurements at that station also may be sought.
- 4) For cases not directly covered under items 1, 2, or 3 above, the NDACC SC will decide on an appropriate evaluation procedure.

If the proposing investigator has also submitted a proposal to a funding agency seeking support for the measurement activity, a ‘point of contact’ within the agency should be identified in the NDACC affiliation proposal so that the results of the NDACC evaluation can be communicated to that agency.

### **Framework for Affiliation**

NDACC’s dual objective of observation and understanding requires high-precision, state-of-the-art measurements. Hence, instrument development and testing as well as measurement verification are high-priority activities to insure the operational continuity and success of the network.

- 1) In cases where a species or parameter is measured by multiple NDACC instruments, the PIs should verify their measurements throughout their NDACC affiliation by comparing measurements obtained using the PI’s instrument with those obtained by other NDACC instruments, instruments in other networks, or satellite instruments. As discussed in the NDACC Instrument Intercomparisons Protocol, the use of NDACC mobile intercomparators and participation in formal intercomparison campaigns are strongly encouraged.

- 2) During their data acquisition periods, PIs shall have access to all data (both final and preliminary) that have been archived on the DHF, and will be bound by the NDACC Protocol for Data Providers and Data Users for the submission of their own data. All NDACC PIs are encouraged to collaborate actively with each other to enable continuing high quality in the analysis and verification processes. The NDACC Data Protocol provides guidelines regarding co-authorship and the exchange of results for collaborative projects

### **Changes to Instruments**

Any changes to an instrument should (as far as possible) not affect the nature of the results obtained. Following such changes, it should be possible to process the results so that they are strictly comparable with results obtained previously. If this is not feasible, then the change in the data characteristics should be fully documented in the NDACC data archive, as described in the NDACC Data Protocol.

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