WORLD METEOROLOGICAL ORGANIZATION

QUESTIONNAIRE on Intercomparison Sites

Addressed to potential participants applying for participation in the  
  
***WMO Solid Precipitation Intercomparison Experiment (SPICE)***

***To be performed at multiple sites, 2012 - 2014***

*Note: If necessary, attach additional pages.*

*Electronic version of the Questionnaire is available at:* [*http://www.wmo.int/web/www/IMOP/intercomparisons.html*](http://www.wmo.int/web/www/IMOP/intercomparisons.html)

**IMPORTANT: If you are proposing a site, please ensure that a short letter is sent by your Permanent Representative to the WMO Secretariat, endorsing the proposal of the site and nominating the designated representative (see section 2 below) as point of contact for further discussions related to this project, if this hasn’t already been done.**

|  |  |
| --- | --- |
| 1. | **Name of institution/company applying for participation** |
|  |  |
|  | Address |

|  |  |  |
| --- | --- | --- |
| 2. | **Designated Representative for the Intercomparison** | |
|  | Surname | First name |
|  | Tel.: | Fax: |
|  | E-mail: | Other: |
|  | **Alternative contact person** | |
|  | Surname | First name |
|  | Tel.: | Fax: |
|  | E-mail: | Other: |

Note:

The information provided in this document will be used by the SPICE Project Team for deciding the allocation of the instruments and systems proposed by the SPICE participants, in direct correlation with the objectives of the experiment.

The SPICE Project Team may follow up with the designated representative, to gather additional information that will enable the project decisions. Any decision will be validated with the designated representative, before becoming final.

# For further details on the scope and objectives of the WMO SPICE, please consults <http://www.wmo.int/pages/prog/www/IMOP/reports/2011/Joint_ET-II_IOC-SPICE.pdf>

### Section A: General Information:

|  |  |
| --- | --- |
| Name and address of the proposed site/facility |  |
| Will you provide instruments for inclusion in the SPICE intercomparison?  If yes, please provide details in [Section E](#_Section_E:_Instruments). | Yes  No |
| In addition to your own instruments, does the site have capacity to accommodate instruments proposed for SPICE, by other participants? (e.g. provided directly by the manufacturers or other WMO Members or their representatives)?  If yes, please provide details in [Section C](#_Section_C:_Site). | Yes  No |
| Are you interested in specific SPICE objectives?  Would you consider focusing the experiments on your site on selected SPICE objectives?  Please refer to the SPICE objectives and provide details in [Section G](#_Section_G:_National). | Yes  No |
| Do you have other projects underway on the proposed intercomparison site, which may share/use data from instruments included in SPICE? (e.g. Instruments under test or instruments providing ancillary data).  If yes, please provide details in [Section G](#_Section_G:_National). | Yes  No |

Section B: Site location, climate, and general facilities:

Additional information on the site climatology is required shall be provided in [Section H](#_Section_H:_Site) of this document.

|  |  |  |
| --- | --- | --- |
| Latitude: |  | |
| Longitude: |  | |
| Elevation: |  | |
| Attach a topographic/satellite map of the area, if available (preferable in a KMZ file format) |  | |
| Proximity of large body of water or forested area (distance to site, surface): |  | |
| Proximity of obstacles (type, distance and direction to site, size): |  | |
| Type of terrain (provide details, including vegetation type, slope, etc): |  | |
| Prevailing climate, in particular during the winter period: |  | |
| Access to the site | Proximity to urban areas |  |
| Accessible year round | Yes  No |
| Means of transportation for people and freight |  |
| Other: |  |
| Status of the proposed site:  e.g. Existing site or new;  if new, when will it be completed and fully operational? |  | |
| Other programs operating on site or in the proximity of the site:  (provide overview) |  | |

|  |  |  |
| --- | --- | --- |
|  |  | |
| Proximity to a weather radar system: | Yes  No | |
| Distance to radar |  |
| Radar type |  |
|  |  | |
| Personnel available on site, during the experiment | Yes  No | |
| If yes, indicate duration per day, type of maintenance performed; |  |
| If no, indicate the frequency of personnel visits over a season. Also indicate if emergency intervention is possible, and the response time. |  |
| Would additional personnel be available during the intercomparison? | Yes  No | |
|  |  | |
| Other information regarding the host site: |  | |

Section C: Site Facilities Description:

Description of capacity for additional instruments submitted for evaluation under SPICE

|  |  |  |
| --- | --- | --- |
| Attach the site layout, including schematics, distances, including from the surroundings; mark the pads available for the additional instruments. |  | |
| Number of instrument pads : | Total: |  |
| Utilized for instruments proposed by host, as participants in the intercomparison; |  |
| Utilised with instruments providing ancillary measurements: |  |
| Available for additional instruments selected for the intercomparison: |  |
| Distance between the instrument pads: |  | |
| Power available at the instrument pads (voltage, number of circuits, limitations): |  | |
| Type of data communication available at the instrument pads (number of circuits, uni/bi-directional): |  | |
| Data communication/ transmission: | Between instruments and the data acquisition system on site: |  |
| Between the site and a central location/archive. |  |
| Type and frequency of data download (real time, daily, monthly, etc) |  |

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|  |  |  |
| --- | --- | --- |
| On site power | AC voltage (e.g. 110VAC/220VAC) |  |
| DC voltage (e.g. ±12VDC) |  |
| Limitations |  |
| Other information |  |

#### Site Data Acquisition System:

Provide a detailed description of the data acquisition system used on the proposed site for collecting, storing, transmitting the intercomparison data (from the instruments and systems under test and the ancillary measurements); the description should include a diagram of the system.

|  |  |
| --- | --- |
| Data logging system (hardware, software): |  |
| Platform: |  |
| Type of inputs: |  |
| Capacity for handling analog sensors |  |
| Number of interfaces available for the experiment: |  |
| Capacity for expansion, and back up |  |
| Feasible temporal resolution of the data collection: |  |
| Frequency of data download (real time, daily, etc) |  |
|  |  |
| Available designated central archiving location/facility, for actively storing the intercomparison data set obtained from the proposed site (provide overview) |  |
| Back-up facilities |  |

### Section D: Site reference configuration:

Summary of field references currently available on the proposed host site;

NOTE: the SPICE IOC may suggest changes to existing configurations to meet project objectives.

#### D1: Reference for the measurement of the total precipitation (precipitation amount)

|  |  |  |
| --- | --- | --- |
|  | **Status**  **(E-Existing,**  **P-planned,**  **N/A – not available)** | **Description (incl. gauge orifice height, model and SW version, configuration, heating)** |
| **WMO Secondary Field Reference:**  Double Fence Intercomparison Reference (DFIR) with a manual (Tretyakov) gauge and Tretyakov shield; |  |  |
| Frequency of manual observations |  |  |
| Methodology of measurement (weighing, measure snow water content, etc) |  |  |
| Length of time since operational (archived data) |  |  |
|  |  |  |
| **Field Reference using an automatic weighing gauge in a DFIR:** |  |  |
| Type of weighing gauge in the DFIR |  |  |
| Type of shield used with the automatic gauge |  |  |

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|  |  |  |
| --- | --- | --- |
|  | **Status**  **(E-Existing,**  **P-planned,**  **N/A – not available)** | **Description (incl. gauge orifice height, model and SW version, configuration, heating)** |
| Frequency and format of reference data |  |  |
| Length of time since operational (archived data) |  |  |
|  |  |  |
| **Other field reference for the measurement of total precipitation, currently in use on the site** |  |  |
| Instrument used (type, model, firmware version, configuration, heating) |  |  |
| Type of shield (include height, diameter) |  |  |
| Frequency and format of reference data |  |  |
| Other information regarding the field reference used |  |  |
|  |  |  |
| Does the site have capacity for the installation of a field reference of the configuration recommended by the SPICE IOC? (the potential configuration consists of gauge to be identified, in a Double Alter wind shield). Provide description, limitations, etc. |  | |

#### D2: Reference for the measurement of snow depth

|  |  |
| --- | --- |
| Availability of manual snow depth measurements | Yes  No |
| Frequency of measurement |  |
| Method of measurement |  |
| Instrument/equipment used (provide description) |  |
| Availability of cameras for snow depth monitoring; provide details | Yes  No |
| Description: |

### Section E: Instruments proposed by the host

Detailed information will be provided for each instrument, using the Instrument Questionnaire, by filling out sections 4, 5, 6, 7\*, 8, and 9\*\* (see NOTES).

**NOTES:**

* (\*)Section 7: provide information on heating, if applicable, only. Attach a description of the heating algorithm, if applicable.
* (\*\*) Section 9: provide reference to the calibration procedure, as available (e.g. manufacturer provided, internally defined, etc). The SPICE IOC may request additional information on the calibration procedure, at a later date.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Instrument Type (e.g. Weighing Gauge, Tipping Bucket, Disdrometers, Snow Depth, etc…) | Instrument Make and Model  (details on each instrument will be provided in response to the questionnaire on Instruments) | Configuration (shield type, number of transducers, other as applicable) | | Number of instruments in the same configuration |
| Shield type (if applicable) | Other configuration information |
|  |  |  |  |  |
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|  |  |  |  |  |
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### Section F: Ancillary measurements:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | **Instruments Used (model, make, configuration, height, number of instruments.** | **Data available (data format)** | **Reporting Interval** | **Status**  **(E-Existing,**  **P-planned,**  **N/A – not available for SPICE)** |
| Air Temperature |  |  |  |  |
| Relative Humidity |  |  |  |  |
| DewPoint Temperature |  |  |  |  |
| Atmospheric Pressure |  |  |  |  |
| Wind Speed 10 m |  |  |  |  |
| Wind Direction 10 m |  |  |  |  |
| Wind Speed at the gauge orifice (specify height) |  |  |  |  |
| Precipitation Detector (Y/N output) |  |  |  |  |
| Precipitation type |  |  |  |  |
| Ice detection sensor |  |  |  |  |
| Snow Depth |  |  |  |  |

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| --- | --- | --- | --- | --- |
| **Parameter** | **Instruments Used (model, make, configuration, height, number of instruments.** | **Data available (data format)** | **Reporting Interval** | **Status**  **(E-Existing,**  **P-planned,**  **N/A – not available for SPICE)** |
| Net Radiation |  |  |  |  |
| Visibility |  |  |  |  |
| Web / video / still cameras |  |  |  |  |
| Micro physical (any method e.g. Auto or manual) |  |  |  |  |
| Snow Water Equivalent observations (manual or automatic) |  |  |  |  |
| Manual observations: precipitation type, snow course, snow depth, assessment of snow drift, blowing snow, etc: |  |  |  |  |
| Radar data |  |  |  |  |
| Other data available |  |  |  |  |

### Section G: MOTIVATION:

|  |  |
| --- | --- |
| List the SPICE objectives of primary interest for your organization: |  |
| Indicate whether and which SPICE objectives you would prefer to focus on, for the experiments organized on the proposed site: |  |
| List existing or planned national projects organized in parallel with SPICE on this site, and which may be sharing data with SPICE |  |
| Other information, relevant to SPICE: |  |

### Section H: Site Climatological Information

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Site Climatology (provide information for the months when solid precipitation is expected)** | | | | | | | | | | | | | |
|  | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Annual |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Temperature:** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Daily Average (°C) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Daily Maximum (°C) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Daily Minimum (°C) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Extreme Maximum (°C) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Extreme Minimum (°C) |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **PRECIPITATION** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Total average Snowfall (cm) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Total average Precipitation (mm) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Extreme Daily Snowfall (cm) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Extreme Snow Depth (cm) |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Average number of days per period with Maximum Temperature:** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <= 0 °C |  |  |  |  |  |  |  |  |  |  |  |  |  |
| > 0 °C |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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|  | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Annual |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Average number of days per period with Minimum Temperature:** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| > 0 °C |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <= 0 °C |  |  |  |  |  |  |  |  |  |  |  |  |  |
| < - 30 °C |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Average number of days per period with snowfall** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| trace |  |  |  |  |  |  |  |  |  |  |  |  |  |
| >= 10 cm |  |  |  |  |  |  |  |  |  |  |  |  |  |
| >= 25 cm |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Average number of days per period with precipitation** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| >= 0.2 mm |  |  |  |  |  |  |  |  |  |  |  |  |  |
| >= 25 mm |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Wind Speed** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Maximum wind speed (m/s) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| daily mean wind speed (m/s) |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| |  |  | | --- | --- | |  |  | | Date | Name of person who completed this form |  |  |  | | --- | --- | | Please return an electronic copy (MS-Word document) of the completed Questionnaire, as soon as possible, but not later  than **15 March 2013** to**:** | | | Dr Isabelle Rüedi E-mail: [iruedi@wmo.int](mailto:iruedi@wmo.int)  Observing System Division Tel: +41 22 730 82 78  OBS Department Fax: +41 22 730 80 21  World Meteorological Organization P.O. Box 2300  CH 1211 Geneva 2, Switzerland | with copy to:  Ms Rodica Nitu E-mail: [rodica.nitu@ec.gc.ca](mailto:rodica.nitu@ec.gc.ca)  Environment Canada Tel: +1 416 739 4133  4905 Duffering St. Fax: +1 416 739 5721  TORONTO, ON  Canada   M3H 5T4 | |