WORLD METEOROLOGICAL ORGANIZATION

QUESTIONNAIRE on Solid Precipitation Gauges

Addressed to potential participants applying for participation in the

***WMO Solid Precipitation Intercomparison Experiment (SPICE)***

*Note: please complete a separate questionnaire for each type of Sensor /System proposed.
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)

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| --- | --- |
| 1. | **Name of institution/company applying for participation**       |
|  | You are applying for participation as [ ]  WMO Member [ ]  Company |
|  | Are you an HMEI member (www.hydrometeoindustry.org)? [ ]  Yes [ ]  No |
|  | Address                      |

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

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| 3. | **Name and address of the manufacturer** *(if different from no.2 above)**-------------* |
|  | Address                      |

| 4. | **Instrument specifications** |
| --- | --- |
|  | Instrument manufacturer       |
|  | Instrument name       | Model/Type       |
|  | Instrument Type: Catchment [ ]  Non-Catchment [ ]  |
|  | Principle of operation:Tipping bucket [ ]  Weighing gauge [ ]  Drop counter [ ] Optical disdrometer [ ]  Other [ ]  please describe:       |
|  | Orifice / measurement area       cm² or Measurement volume       cm³ |
|  | Which parameter(s) does the sensor report?Precipitation Amount (PA) [ ]  Precipitation Intensity (PI) [ ]  Time of Tipping [ ] Drop Size Distribution [ ] Others       |
|  | Measurement range for PI: from       mm/h to       mm/hCapacity (weighing gauges):       |
|  | Operating temperature range: from      °C to      °C |
|  | Resolution:for PI *(measured or calculated over a period of one minute):*       mm/h.for PA:       mm |
|  | Measurement uncertainty for daily accumulation:      Measurement uncertainty for PI:       |
|  | What is the time interval over which the measurements are averaged?Averaging time for PI:        seconds Averaging time for PA:        seconds |
|  | Delay time for Precipitation Intensity (PI) measurement*:*       minutes. |
|  | Internal update cycle for the calculation of a new measurement value*:*       s.Please provide a procedure for synchronization of the instrument’s calculation cycle with the clock of the data acquisition system.       *(You can refer to another document if available).* |
|  | Values are internally linearized / corrected [ ] External correction necessary [ ]  please provide algorithm       |
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| 5. | **General qualification for participation** |
| --- | --- |
| 5.1 | Is your instrument capable to measure solid precipitation? [ ]  YES [ ]  No | *NOTE: If your answer to any of the questions 4.1 or 4.2 is “No” your instrument is not qualified to participate in SPICE* |
| 5.2 | Is your instrument making automatic measurements? [ ]  YES [ ]  No |
|  | Total number of operational installations at the time of the submission :      In case of new instruments: Number of intended installations in 2013:       |

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| 6. | How many instruments/systems of the proposed model do you intend to provide for SPICE?      Note: the SPICE IOC will decide where the instruments will be installed for the experiment.Do you intend to provide any backup (full system or components of the system? [ ]  YES [ ]  NoIf Yes, please provide details.*Given the fact that it is a multi site experiment an increased number would allow testing in different climatic regimes and testing in pairs. The International Organizing Committee will decide on the appropriate test site based on instrument properties, site climatology and logistic aspects.)* |

| 6. | **Sensor Interface** |
| --- | --- |
|  | *Serial Digital Output* | RS485 [ ]  RS422 [ ]  Ethernet [ ]  |
|  | *Data Protocol* | SDI-12 [ ]  proprietary ASCII [ ] Other: [ ]  Please refer to manual       |
|  | *Analogue output* | *Pulse* [ ]  *Reed Relay*  [ ]  Current [ ] Voltage [ ]  |
|  | Other [ ]  Please describe        |
| 6.1 | *Does the instrument/system proposed require any specific data logging storing hardware and/or software?* [ ]  YES [ ]  No*If Yes, please provide details, to allow a full assessment of the submission.**If Yes, the Instrument Provider is expected to provide any specialised interface (hardware, software) which is required to operate the instrument/system.**Sufficient information and support to the SPICE team is required to enable the configuration of the system.* |
|  | *Note: If any other than serial digital output (i.e. analog output) is provided, the participating institution/company should submit an appropriate converter (1 piece) with RS485/422 output.* |

| 7. | **Information for field installation** |
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|  | ***Notes on the power supply: if necessary converters must be provided for available voltages at the Intercomparison sites (e.g. 110 V for North America, 220 V for Europe)*** |
|  | Nominal power supply voltage:       V | Maximum total power consumption       W |
|  | Does the instrument require a separate circuit for powering the heaters?       |
|  | Heating of the instrumentWhich parts of the instrument are heated and at what heating power?       heated by       W      heated by       W      heated by       WTotal maximum heating power:       W; which voltage:  |
|  | Max Cable length for power supply      m max length for signal cable      m |
|  | *Notes on the cable lengths: Cable lengths for power supply and signal cable should be at least 4 m.*  |
|  | *Notes on the amount of space for installation: there will be an area of 50 cm x 50 cm on a separate concrete foundation for each instrument.* |
|  | Overall dimensions of the instrument, in cmLength       **x** Width       **x** Height       cm | Total weight       kg |
|  | Is the instrument in operational use equipped with a windshield? Yes [ ]  No [ ]  *Do you intend to provide the instrument/ system equipped with a shield?* Yes [ ]  No [ ]  *Note: if the instrument is intended for testing in a shielding configuration, the proponent is responsible to provide the shield, together with all the instructions required for installation.*Type of windshield:       *(please provide description and add a picture)**Is this a Single or Double shield?*Overall dimensions: height:       cm X diameter       cm Are there any specific requirements regarding the configuration of the shield or of the instrument?  Yes [ ]  No [ ]  Provide the details regarding the shield configuration, to enable a full assessment of the submission. |
|  | Will you provide a mast that is suitable for the expected snow depth at the site? Yes [ ]  No [ ] *Note: This is a multi-site Intercomparison. Depending on technical criteria and availability of space your instrument(s) will be proposed for installation at one or more sites.* |
|  | Dimensions: Length x Width x Height (in cm); and Weight (in kg) of main elements |
|  | Part id       L      x W      x H            kg |
|  | Part id       L      **x** W      **x** H            kg |
|  | Part id       L      **x** W      **x** H            kg |
|  | Part id       L      **x** W      **x** H            kg |
|  | Part id       L      **x** W      **x** H            kg |
|  | Requirements for installation (e.g. special mast, foundation etc.):       |
|  | Will an expert give assistance with the field installation? Yes [ ]  No [ ]  |
|  | Will an installation tools kit be provided? Yes [ ]  No [ ]  |
|  | Any special requirements and tools required for the installation? Yes [ ]  No [ ] Please describe       |
|  | Special fixtures required for the installation? Yes [ ]  No [ ] Please describe       |
|  | Siting restrictions (e.g. clearance, footprint, interference from other instruments, etc)?       |

| 8. | **Operation and Maintenance** |
| --- | --- |
|  | Average maintenance period:      Maintenance tools and required:       |
|  | Any other special requirements to ensure proper operation? Yes [ ]  No [ ] Please specify       |
|  | Is additional equipment required for its operation? Yes [ ]  No [ ] Please specify:       |

| 9. | **Calibration** |
| --- | --- |
|  | *Note: Your instrument has to be calibrated before shipment and the calibration certificates shall be supplied with the instrument(s).* |
|  | Calibration reference used:       |
|  | Recommended calibration intervals       |
|  | Calibration procedure       |

| 10. | **Shipment of participating instruments** |
| --- | --- |
|  | *This section has to be filled out only if shipment is necessary.**Note: (indicate information for one instrument only!)* |
|  | Approx. commercial value       Euro | Total weight of consignment       kg |
|  | Number of boxes       | Overall volume of boxes       cm3 |
|  | Overall dimension, in cm (i.e. for storage purposes)Length       **x** Width       **x** Height       cm |
|  | Other information concerning shipping        |

| 11. | **Documentation** |
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|  | Appropriate documentation including detailed* installation instructions and manuals
* operation and maintenance manuals
* calibration procedures

shall be provided in advance but no later than the submission of the instrument (if possible in electronic format). |
|  | Please note any other relevant information.                |

| 12. | **Motivation** |
| --- | --- |
|  | What are your expectations from SPICE as an instrument proponent in excess of the objectives that are already stated in SPICE?(see: http://www.wmo.int/pages/prog/www/IMOP/intercomparisons/SPICE/PR-6601-SPICE\_en-Annex.pdf)?                 |

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|       |  |       |
| Date |  | Name of person who completed this form |

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| 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.intSenior Scientific Officer Tel: +41 22 730 82 78OSD/OBS Fax: +41 22 730 80 21World Meteorological Organization P.O. Box 2300CH 1211 Geneva 2, SwitzerlandWith copy to: Ms Rodica Nitu E-mail: rodica.nitu@ec.gc.caEnvironment Canada Tel: +1 416 739 41334905 Duffering St. Fax: +1 416 739 5721TORONTO, ONCanada   M3H 5T4 |