WORLD METEOROLOGICAL ORGANIZATION

QUESTIONNAIRE on Snow on the Ground Instruments

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                      |

|  |  |
| --- | --- |
| 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       |
|  | Which parameter(s) does the proposed instrument report?Snow Depth [ ]  Snow Density [ ]  Snow Water Equivalent [ ]  Others (please specify)       |
| 4.1 | Principle of operation:Ultrasonic distancemeter [ ]  Laser distancemeter [ ] Other [ ]  please describe:       |
| 4.2 | Measurement area on the ground:Does the actual measurement area on the ground vary with target distance? [ ]  YES [ ]  NoPlease explain (e.g. by giving the aperture angle)      Minimum distance between sensor and snow/ground surface       cmMinimum footprint required for a reliable measurement:  |
| 4.3 | Operating temperature range: from      °C to      °C |
| 4.4 | Measurement range: from       cm to       cmOther (provide details): |
|  | Measurement Resolution*:*       cm (other units; please specify) |
|  | Measurement uncertainty*:*       |
|  | What is the time interval over which the measurements are averaged?        minutes |
|  | Delay time for Snow Depth measurements*:*       minutes. |
|  | Internal update cycle for the calculation of a new measurement value*:*       s.Do you have 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).* |
| 4.5 | Do the original measurements require any corrections (e.g. temperature correction)?[ ]  Yes [ ]  NoPlease give details which variables are used for correction and what kind of sensors:                If you need input from sensors of the station, please indicate and give details:           Are the values internally corrected [ ]  Yes [ ]  NoAlgorithm for external correction:       |

| 5. | **General qualification for participation** |
| --- | --- |
|  |  |
|  | Total number of operational installations, at the time of the submission:      In case of new instruments: Number of intended installations in 2013:       |
|  | How many instruments/systems 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 of instruments would allow testing of pairs as well as testing in different climatic regimes.* *The International Organizing Committee will decide on the appropriate test site based on instrument properties, site climatology and logistic aspects.)* |

| 6. | **Sensor Interface** |
| --- | --- |
| 6.1  | *Serial Digital Output* | RS485 [ ]  RS422 [ ]  Ethernet [ ]  |
|  | *Data Protocol* | SDI-12 [ ]  proprietary ASCII [ ] Other: [ ]  Please refer to manual       |
|  | *Analogue output* | Current [ ] Voltage [ ]  Other [ ]  Please describe       |
|  | *Note: If any interface than other Ethernet or RS485/422 is provided the participating institution/company should submit an appropriate converter (1 piece) with RS485/422 output.* |
| 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.* |

| 7. | **Information for field installation** |
| --- | --- |
|  | *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 |
|  | 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 |
|  | Cable length for power supply      m for signal cable      m |
|  | *Notes on the cable lengths: Cable lengths for power supply and signal cable should be at least 6 m.*  |
|  | *Notes on the amount of space for installation:*  |
|  | Overall dimensions of the instrument, in cmLength       **x** Width       **x** Height       cm | Total weight       kg |
|  | 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 tools required for the installation? Yes [ ]  No [ ] Please describe       |
|  | Special fixtures required for the installation? Yes [ ]  No [ ] Please describe       |
|  | Siting restrictions (e.g. clearance)?       |

| 8. | **Operation and Maintenance** |
| --- | --- |
|  | Average maintenance period:      Maintenance tools and software 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 information** |
| --- | --- |
|  | *This section has to be filled out only if shipment is necessary.**The information should reflect one instrument.* |
|  | 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** |
| --- | --- |
|  | Appropriate documentation including detailed* installation instructions and manuals
* operation and maintenance manuals
* calibration procedures

shall be provided in advance , but not later than the time of the shipment of the instrument (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 |

Please return an electronic copy (MS-Word document) of the completed Questionnaire, as soon as possible, but not later
than **15 March 2013** to**:**

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