



WMO SPICE DAT Teleconference

Date	10.07.2013	Time	12:00 – 14:00 (UTC)
Purpose	SPICE / Data Analysis		
IOC member attendees (strike through if not attending)	Bruce Baker, Jordy Hendrikx , Yves-Alain Roulet, Roy Rasmussen, John Kochendorfer, Paul Joe , Mike Earle , Daqing Yang , Craig Smith , Rodica Nitu , Matteo Colli , Mareile Wolff, Kai Wong, Laurie Wilson , Audrey Reverdin,		
Distribution	All attendees; SPICE Project team		
Moderator	M. Wolff	Recorder	M. Wolff

Meeting Records (A = Action / D = Decision / I = Information)

#	A / I / D	Item Description	Owner	Due Date [DD.MM.YYYY]
14.0	I	Agenda <ol style="list-style-type: none"> 1. Agree on work-packages and tasks 2. Who is contributing where 3. Working Schedule 4. Next Telephone Conference: Tuesday 20th August, 12UTC 		
		1. Agree on work-packages and tasks		
14.1	D	<p>The DAT agreed on the following work-packages:</p> <ul style="list-style-type: none"> A Quality Control B Production of Level 3 Data C Analysis D Uncertainty of References E Relations between References <p>It was noted that B and C are closely linked and might be even just one work-package. As B ends with a very defined deliverable, we'll keep anyway keep them listed at two</p> <p>Most open tasks were assigned to one of the five work-packages (color coded)</p>		
		2. Who is contributing where?		
14.2	D	<p>The DAT agreed on the following work-package managers and task teams:</p> <ul style="list-style-type: none"> A – QC – Mike (TBC) (John, Jordy, Roy (Andy), (Matteo), Kai) B – L3-Data – Mareile (John, Audrey, Roy, Yves-Alain, Mike, Craig, Yves (TBC)) C – Analysis – Mareile (John, Audrey, Roy, Yves-Alain, Mike, Craig) D – R Uncertainty – John (Bruce, Paul, Laurie) E – R Linking – Roy (Bruce, Daqing, Craig) 		



Teleconference Minutes

		3. Working schedule		
14.3	D	<p>Generally, the work will be organized and done within the work-package teams, which are encouraged to use emails, Teleconferences (WMO can set up a Webex-call) or visits. Work-package managers (and teams) report on their progress during dedicated DAT telephone conferences with a presentation and the possibility for discussion with the larger group, resulting in feedback for the further work on the work-package.</p> <p>DAT telephone conferences will be set up every 4 weeks; two work packages will present their ongoing work (presentation ca. 20-30min, discussion 20min) and there will be a short roundtable giving all work- packages the chance to report on urgent issues, raising questions or challenges, as well as some general topics (if necessary).</p> <p>Planned Telephone Conferences (12-14 UTC) are: 20th of August (Quality Control & Linking References) 17th of September (Level 3 Data & Reference Uncertainty) 15th of October (Quality Control & Analysis) 12th of November (Reference Uncertainty & Level 3 Data) 10th of December (Linking References & Analysis)</p>		



Open Actions

#	A/I/D	Item Description	Owner	Due Date
13.6	A	Give feedback if there are any Davos-actions missing	Audrey	31.07.2013
13.2	A	Give feedback to Julie: <ul style="list-style-type: none"> No ground included in calculations but will likely influence the flow a lot (logarithmic wind profile induced by zero wind speed at the ground) – is that possible? The main flow hits the DFIR exactly at one corner, which is not very likely – is it possible to turn the DFIR that the flow hits an edge of the DFIR? Confirmation that an Alter shield is included in the calculations Could you produce a plot showing the chosen placement of the sensor and its influence?	Mareile/Matteo	31.07.2013
7.14	A	Request input (Julie, Matteo, Scott) for measurements necessary to validate the CFD model. <i>March 03: Roy has asked Julie, Matteo and Scott; waiting for answer.</i> <i>Matteo and Julie are at Boulder in August and working on that with Roy then.</i>	Roy	31.08.2013
DVS.1	A	Encourage the site managers to contact manufacturers for confirmation of proper instrument behavior to be sent out with letter to site managers	Rodica	31.07.2013
DVS.2	A	Pseudo-code for filter methods to be sent around	Mike & Matteo	31.08.2013
DVS.3	A	Realizing both filter methods at NCAR	Roy/Andy	31.10.2013
10.4	A	In GEONOR data, some small steps were seen (in precip free times), resembling a 'saw-tooth' pattern. It should be analyzed whether these steps are caused by a single wire only. In that case there would be a possibility to remove them. Roy noted that the configuration of the GEONOR in the DFIR at Marshall had been updated since the cases in question, which may have remedied the issue. Similar steps were observed for the GEONOR in the single-Alter, which were more difficult to explain. Roy and Bruce also emphasized that the magnitude of these errors is likely small relative to that observed during precip events.	Matteo / Mike	31.05.13 Check with Matteo/Mike and Bruce about status
DVS.4		Documenting the QC-algorithm/code including a manual for site-managers	Roy	30.11.2013
4.7	A	Summary of basic QC Provide an additional summary of basic QC statistics for each site: bar chart or table... to assist local site managers. It should contain e.g. the number of invalid characters in all files for each site or the number of missing columns, missing data etc...	Andy, part of the QC code	30.11.2013



Teleconference Minutes

#	A / I / D	Item Description	Owner	Due Date
DVS.5	A	Define filter thresholds: <ul style="list-style-type: none"> • 6 s and 1 min outlier threshold • 6s and 1 min jump definition 	Quality Control	30.09.2013
DVS.6	A	Tracking of changes at each site	Jordy	31.08.2013
DVS.10	A	How to decide that one wire is bad and what to do with it? How will e.g. an average of two wires influence the uncertainty of the reference-gauge	Quality Control	xx
DVS.11	A	Coding and optimizing the event selection algorithm (preferably with several sites);	Level 3 Team	12.11.2013
DVS.12	A	Completing the list of “characterizing” parameters for events	Level 3 Team	31.10.2013
DVS.13	A	Implementing the “final” code at NCAR for processing data of all sites to secure the production of comparable event files	Roy/ Andy	30.11.2013
DVS.14	A	Explore methodologies to determine precipitation type	John, Mareile Level 3 team	
DVS.16	A	Homogenization of events: Sensitivity analyses of the influencing parameters resulting in a comprehensive list	Audrey	
DVS.17	A	Classification of events: Sensitivity analyses of the influencing parameters resulting in a comprehensive list	Audrey	
DVS.18	A	Test and re-assess R3-R2 transfer method for different site data	Linking Reference team	31.12.2013
DVS.19	A	Discussion of linking methods, literature search, uncertainties,..	Linking Reference Team	30.11.2013
DVS.20	A	Discussion of R0-R1 transfer functions, considering available data from Haukeliseter and Marshall, evt. using CFDs	Linking Reference Team	xx
DVS.21	A	Including future data from Caribou Creek	Daqing	xx
DVS.22	A	Developing transfer function R1-R2, use data from Care	Linking Reference Team	xx
5.5	A	Bruce to send out results from calibration testing – weights vs. liquid John noted that placement of weights is critical factor	Bruce	31.07.2013



Teleconference Minutes

#	A / I / D	Item Description	Owner	Due Date
14.4	A	Conduct comparison of calibration methods: <ul style="list-style-type: none"> • bottle method • low-rate calibrator proposed by Italy (when available) • low wind cases • comparison of same configurations • rain cases 	Reference Uncertainty Team	
DVS.26	A	Evaluate and discuss methods for assessing the uncertainty of reference gauges/configurations	Reference Uncertainty Team	xx
DVS.27	A	Describe the uncertainty of the gauges and/or gauge configurations	Reference Uncertainty Team	xx

Completed Actions

#	A / I / D	Item Description	Owner	Due/Delivery Date & Status
4.6	A	Commissioning of QC Next step after site commissioning should be to check that all QC settings are filled out on the NCAR web site. Site managers should be able to manage their data transfer and data QC by help of this web site. There should be a manual / tutorial for them (help button).		Merged with DVS.4
DVS.29	I	The DAT discussed several methods to assess the uncertainty of reference gauges: <ul style="list-style-type: none"> • Field calibration with flasks • Dynamic field calibrator • Low wind events – for comparing different gauge configurations • Rain events – for comparing different gauge configurations at higher wind speeds Comparing similar gauge/shield configurations		
5.6	A	Conduct comparison of calibration methods at Marshall site (CRN vs Calibrator proposed by Italy). Bruce will send flask to NCAR; also will explore sending weights to NCAR. John noted these can only be used for 600 mm Geonor. Result: -too high rates from existing instrument New task: -redo the test when low-rate-equipment is ready (new Action Item)	Bruce/Roy	05.05.2013 done
DVS.28	I	Emanuele presented the field calibrator in Davos The IOC recognized the suitability of the calibrator and invited the Lead Centre to consider further developing and testing and to assess the timeframe by which such instruments could be made available to Site Managers		



Teleconference Minutes

#	A/I /D	Item description	Owner	Due/delivery date Status
5.4	I	Emanuele to report on the field calibration equipment and procedures proposed by Italy for use for gauges at Marshall. See Information DVS.17	Emanuele/Roy	05.03.2013 Closed 10.7.2013
DVS.25	I	Daqing's paper about R0-R1 transfer available at meeting website		
5.14	A	Each lead to document methodologies developed for Davos meeting (first review: May 14): will be submitted as meeting documents <i>11.03.13: Daqing offered to prepare a draft document on the link between R0 and R1 (based on Valdai data).</i>	Daqing	June 2013 done
DVS.24	A	Complete transfer method (last step)	Roy	03.07.2013 done
DVS.23	I	Roy presented method for linking R3 with R2		
5.11	A	Roy will propose methodologies linking R3 refs with R2, R1 refs (first review: March 26) Could be tested by other site teams (e.g. CARE)	Roy, Bruce	April 2013 done
DVS.9	I	The DAT decides to use the following QC-methods before noise filtering: <ul style="list-style-type: none"> • Outlier filter (gradient filter) • Jump filter – only flag data for later manual inspection 		
6.5	A	Data quality control procedures Jordy has agreed to take up the task of documenting the data quality control procedures and is developing a template for QC procedures. His idea is to send the QC template to the DAT team and populate it as best as we can. We can then compare all the different approaches / and areas where people are using automatic QC.	Jordy	26.03.2013 Closed 10.07.2013
7.7	A	Gaussian filter: Test if short gaps could be filled up by a straight line.	Mike et al.	26.03.2013 Closed 10.07.2013
7.4	A	Plot noise (noisy curve – filtered curve) over wind speed to display the noise reduction for various filter methods (or settings).	Mike et al.	26.03.2013 Closed 10.07.2013
5.3	A	Roy to prepare video on using NCAR SPICE website for data QC Transferred to similar action item (DVS.8)	Roy	April 2013 Closed 10.07.2013
7.9	A	What is causing the fluctuations? The observed fluctuations of the Geonor weight curves should be correlated with temperature, wind and radiation. Closed, no longer necessary	Mike et al.	09.04.2013 10.07.2013



Teleconference Minutes

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11.4	A	<p>We should ask manufacturers for a confirmation that installation and operation of their instruments is OK <input type="checkbox"/> suggest to Rodica</p> <p><input type="checkbox"/> In commissioning protocol there is some information on this. We could send on request e.g. some sample data to manufacturers so they can check if instruments are working OK. Reference data should not be necessary for this.</p> <p><input type="checkbox"/> Proposal: encourage site managers to contact manufacturers and remind them of the opportunity to receive their data and do this check.</p>	Bruce	07.06.2013 done
13.5	A	Check actions and report back if they can be closed or are not necessary anymore	All & Task owners	10.07.2013
13.9	A	<p>Decide on how to proceed with the work:</p> <ul style="list-style-type: none"> o frequency of telecons o using topic telecons (so not everybody has to participate everytime) o workplan/timeline <p>...</p>	DAT	10.07.2013
13.8	A	<p>Decide on work-packages, assigning work-package managers and teams. “Who wants and can contribute to what and how”?</p> <p>Work package managers are supposed to be the person keeping “the overview”, tracking the result and trying to reach a usable result at the end – there are not necessarily being the person doing most of the actual work.</p>	DAT	10.07.2013
13.1	D	<p>The DAT agreed to recommend the following place for an optical precipitation detector or precipitation type sensor inside the DFIR:</p> <ul style="list-style-type: none"> • Inside the inner fence • 75 cm below the gauge opening, corresponds to half way down the inner fence • perpendicular to the main wind direction • if possible using two precipitation sensors at different places to account for different wind directions. <p>Mount it in the middle between Alter and inner fence</p>		
5.9	A	Develop a draft plan how the work for the meeting in Davos; include currently made commitments (see below) Will be reviewed with Team	Eckhard	26.03.13 done
6.8	A	We have to define which tasks have to be ready for the Davos meeting to which extent.	All	27.03.2013 done
10.5	A	Plot bucket weight vs temperature and derive temperature coefficients (linear slope) for Pluvio ² and GEONOR gauges. Apply rough temperature adjustment to data to see which variations are remaining.	Mike	31.05.2013



Teleconference Minutes

#	I/A/D	Item Description	Owner	Due date/ Status
2.1		Each of the sites to provide their “favourite” data set (containing some special events or days) → Comparison of different approaches of processing (by host and by DAT). <u>Feb 26 update</u> : data provided by Norway; all others outstanding <u>March 5 update</u> : data of CARE and Bratt’s lake available, all others outstanding. Reminder has been sent by e-mail. <u>March 19 update</u> : Marshall data is also available. Finland will send data soon and Switzerland asap. <u>May 17 update</u> : Sodankylä and Weißfluhjoch have sent their example data.	Eckhard	March 04
5.17	A	Team recognized need for quantifying alternative methodologies for assessing and comparing different filtering, aggregation methods/approaches. Input on options to be provided to Mike for summary and discussions.	Mike (others welcome to contribute!)	05.03.2013 26.04.2013
6.10	A	Matteo should make an outline of his work. <i>No longer necessary, as Matteo’s work is done independently of SPICE.</i>	Matteo	31.3.2013
7.5	A	Plot the noise distribution. Is it Gaussian? Outliers observed?	Mike et al.	26.03.2013 26.04.2013
7.12	A	Comparison of Gaussian vs. moving average to see what is more effective. → “effectiveness” in terms of noise reduction and detail retention (e.g. real steps (caused by precipitation) should not be smoothed).	Mike	26.03.2013 26.04.2013
4.5	A/D	QC settings It was agreed on that a certain instrument type should have the same QC settings on all sites. DAT should provide a list of these recommended settings. Share document on standard QC setting for different instruments in DAT for approval. March 26: Mike has resent list to DAT for completion.	Mike	04.03.2013
4.4	A	Data set download Provide functionality for a download of a complete day’s data set. <i>Task deleted: It is already possible to download a whole day’s data of selected instruments.</i>	Andy	28.03.2013
5.10	D	Mike/Matteo to work on noise filtering, independently using provided data sets Will report on results on March 19, 2013 telecon	Mike/Matteo	19.03.2013 done
5.13	D	Bruce will propose methodologies on the derivation and use of ratios for R3 references (first review: April 02.) Will be tested using R3 data from various sites. Could be tested by other site teams (e.g. CARE)	Bruce	April 02, 2013 done
5.12	A	Mike to provide to Roy proposals for filtering limits, to be implemented in the NCAR QC procedures, based on the work done in Canada	Mike	March 19 done
6.3	A	Lab test should be added on the agenda for the Davos meeting.	Rodica	19.03.2013 done



Teleconference Minutes

#	I/A D	Item Description	Owner	Due Date / Status
5.7	A	Contribution of DAT members Compile list of contributions committed by DAT members. Evaluate the eventual need for assistance.	Eckhard	26.02.2013 done
5.8	D	Confirmation of contributions (confirmed or tentative) DAT Project Plan (v0.1) Mike/Matteo to co-lead derivation of reference dataset (team: Paul, JohnK, Craig, Yves Alain) Roy/Bruce to co-lead development of inter-site assessment of results (team: JohnK, Mike, Jordy) Craig and Daqing to co-lead development of methodology for reference obs of snow on the ground (Craig busy until the end of May). Eckhard to confirm with Jordy about leading the compilation of input to data QC procedures; (team: John K, Mike) Mareile to lead site-specific methodology/results compo- nent (Team: Paul, Yves-Alain, site representatives)		26.02.2013 done
5.15	A	Append/complement request sent to Site managers for site data to include data for both gauges in R3 configuration. To enable development and testing of methodology.	Eckhard	01.03.2013 done
5.2	D/ A	Future teleconferences to be held on Tuesdays at 14 UTC Eckhard to inform WMO	Eckhard	done
1.9		Discuss possibility for contracting data analysis expert	SPICE team	30.09.2012 31.01.2013 done
	A	Automatic QC procedures NCAR should provide a list of already implemented QC checks, including ranges etc...	Roy	12.03.13 done
	A/ D	Time tagging Make proposal on time tagging of averages Decision: time tagging: end of interval	Mike	12.02.13 done