


Teleconference Minutes

WMO SPICE DAT Teleconference

Date	20.08.2013	Time	14:00 – 16:00 (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, Redica Nitu , Matteo Colli , Mareile Wolff, Kai Wong , Laurie Wilson, Audrey Reverdin, Yves Lejeune		
Distribution	All attendees; SPICE Project team		
Moderator	M. Wolff	Recorder	M. Wolff, M. Earle

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

#	A / I / D	Item Description	Owner	Due Date [DD.MM.YYYY]
15.0	I	Agenda 1. Welcome 2. Report and Discussion work-package Quality Control 3. Report and Discussion work-package Relations between References 4. Next Telephone Conference: 17.09.2013		
		1. Welcome		
		2. Report and Discussion: work-package Quality Control	Mike	
15.1	I	Mike presented a list of actions and their status within the work-package ("SPICE_DAT_QC_Tasks_Progress_Updated_130820.docx") The group discussed several topics of the presentation. The list of actions in this Telephone conference minutes are updated accordingly	Mike	
		3. Report and Discussion: work-package Relations between References	Roy	
15.2	I	Roy presented the updated R2-R3 relating method, slide show will be distributed together with the minutes, feedback of group discussion is included in updated slide show: ("Proposed R3 Analysis")	Roy, Bruce	
15.3	I	Other tasks of work-package remain unchanged, group will work on the topics -> next group presentation 10 th of December	Roy, Daqing, Craig and Bruce	


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Open Actions

#	A / I / D	Item Description	Owner	Due Date	Status
13.6	A	Give feedback if there are any Davos-actions missing	Audrey Mareile	31.07.2013	Audrey has delivered a list of action items Mareile to include/merge in the DAT-item list
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.	Roy	31.08.2013	<i>March 03: Roy has asked Julie, Matteo and Scott; waiting for answer. Matteo and Julie are at Boulder in August and working on that with Roy then.</i>
DVS.1, QC 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	To be distributed in near future
DVS.6 QC 2	A	Tracking of changes at each site	Jordy	31.08.2013	Jordy has shared a proposed template for feedback and discussion. Comments from DAT on 20.08.2013 will be incorporated by Jordy, and the template will be shared with the rest of the SPICE Team
DVS.2, QC 3	A	Pseudo-code for filter methods to be sent around	Mike & Matteo	31.08.2013	Gaussian Filter is ready to share; Mike to contact Isabelle re: distribution of site teams. Code could be posted at FTP-site, needs clarification (Rodica) Moving average will be left to site teams, with offer of support from DATA


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#	A / I / D	Item Description	Owner	Due Date	Status
DVS.5 QC 4	A	Define filter thresholds: <ul style="list-style-type: none"> • 6 s and 1 min outlier threshold • 6s and 1 min jump definition 	Mike Roy Andy	30.09.2013	Outlier filter included as part of QC on NCAR SPICE site. Bucket capacities provide reasonable max/min limits for precip amounts from Geonor, Pluvio gauges. Mike to send Andy rough 'jump' filter code for implementation at NCAR. Roy to test threshold values for flagging jumps using site data with different temporal resolutions. Will use maximum observed and/or reasonable precip rates as guideline for threshold value selection.
QC 5	A	Geonor wire comparison and averaging; impact on uncertainty Connected to DVS.10 (uncertainty group)	Mike, Mareile, John, Daqing	15.10.2013	Mike to initiate discussion with task group via e-mail. Report and discussion to follow.
DVS.3 QC 6	A	Implementation of filtering, QC procedures at NCAR	Roy & Andy	31.10.2013	Requires completion of QC3, QC4 and QC5 Roy will discuss with Andy on 130823. Hopefully implemented in September. Starting with Marshall data, to be extended to CARE data, other sites
DVS.4 QC 7	A	Documenting the QC-algorithm/code including a manual for site-managers	Roy, Mike	30.11.2013	To follow completion of Q6
4.7 QC 8	A	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	TBD	Focus on QC6 for now
10.4 QC 9	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.	Mike, Roy & Daqing	15.10.2013	Mike to initiate discussion with task group Report and discussion to follow, 15.10.2013


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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 which takes limits data to temperatures <-4deg C and wind speed < 5m/s. Wind speed is binned with 1m/s bins.	Linking Reference team	31.12.2013	Roy presented status of the actual method. Needs to be tested with other data from other site to refine the method (probably adaptations are needed) Linear function might be changed to a nonlinear function Blowing snow – how to deal with that? Possible to soften the limitations to include higher wind speeds?
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 Haukelisetter 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	



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#	A / I / D	Item Description	Owner	Due Date	Status
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	
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	



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Completed Actions and Information

#	A / I / D	Item Description	Owner	Delivery Date & Status
14.3	I	<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>		
14.2	I	<p>The DAT agreed on the following work-package managers and task teams:</p> <p>A – QC – Mike (TBC) (John, Jordy, Roy (Andy), (Matteo), Kai)</p> <p>B – L3-Data – Mareile (John, Audrey, Roy, Yves-Alain, Mike, Craig, Yves (TBC))</p> <p>C – Analysis – Mareile (John, Audrey, Roy, Yves-Alain, Mike, Craig)</p> <p>D – R Uncertainty – John (Bruce, Paul, Laurie)</p> <p>E – R Linking – Roy (Bruce, Daqing, Craig)</p>		
14.1	I	<p>The DAT agreed on the following work-packages:</p> <p>A Quality Control</p> <p>B Production of Level 3 Data</p> <p>C Analysis</p> <p>D Uncertainty of References</p> <p>E Relations between References</p> <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>		
DVS.29	I	<p>The DAT discussed several methods to assess the uncertainty of reference gauges:</p> <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 <p>Comparing similar gauge/shield configurations</p>		


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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		
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	Daqings 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 		
DVS.8	D	No temperature correction is applied to the data because it has shown to be very extensive while not being reliable in all cases. For the retrieval of the transfer functions, precipitation events with high temperature variations will be filtered out in order to minimize the temperature effect on gauges		
11.7	I A	Mike showed plots of pluviometer temperature dependence from Sodankylä and Weißfluhjoch. The temperature coefficient changes daily, so it seems that there is some other influence factor affecting the weight data. For the Davos meeting a proposal has to be prepared if and how a temperature correction should/could be applied to GEONOR and Pluvio ² data.	Mike	07.06.2013 done


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#	I/A/D/	Item Description	Owner	Due date / Status
11.6	A	Prepare a proposal for optimum noise filter for GEONOR and Pluvio ² for the meeting in Davos.	Mike	07.06.2013
DVS.7	D	The DAT agreed on using both filter methods on the SPICE data in order to further evaluate the difference when used on real data. The filter widths are set to 2 min and 8 min to be used on the 6 s data sets and the 1 min data sets, respectively. The DAT acknowledges that the chosen filter width is not optimal for the Pluvio2 gauges (because of lower noise frequencies) in favor of equal time response of both gauges.		
11.3	A	Send proposal for definition of snowfall events for discussion and commenting in DAT.	Mareile	15.06.2013 Done
DVS.15	D	The DAT recommended an event selection method which is described in annex IV of the Davos meeting report. The following conditions has to be positive: <ul style="list-style-type: none"> • YN-detector positive and positive accumulation within 10 min inside gauge • Accumulation higher than 0.25mm/30min • Net precipitation duration longer than 60% The result is an event-file for each site which contains all 30-min periods with precipitation and characterizing parameters		
11.4	A	We should ask manufacturers for a confirmation that installation and operation of their instruments is OK <input type="checkbox"/> suggest to Rodica <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. <input type="checkbox"/> Proposal: encourage site managers to contact manufacturers and remind them of the opportunity to receive their data and do this check.	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	Decide on how to proceed with the work: <ul style="list-style-type: none"> ○ frequency of telecons ○ using topic telecons (so not everybody has to participate everytime) ○ workplan/timeline ...	DAT	10.07.2013
13.8	A	Decide on work-packages, assigning work-package managers and teams. "Who wants and can contribute to what and how"? 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.	DAT	10.07.2013


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#	I/A/D/I	Item Description	Owner	Due date / Status
13.1	D	The DAT agreed to recommend the following place for an optical precipitation detector or precipitation type sensor inside the DFIR: <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. Mount it in the middle between Alter and inner fence		
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
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 17update</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)	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



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#	I/A/D	Item Description	Owner	Delivery Date/ Status
4.5	A/D	<p>QC settings</p> <p>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.</p> <p>Share document on standard QC setting for different instruments in DAT for approval.</p> <p>March 26: Mike has resent list to DAT for completion.</p>	Mike	04.03.2013
4.4	A	<p>Data set download</p> <p>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></p>	Andy	28.03.2013
5.10	D	<p>Mike/Matteo to work on noise filtering, independently using provided data sets</p> <p>Will report on results on March 19, 2013 telecon</p>	Mike/Matteo	19.03.2013 done
5.13	D	<p>Bruce will propose methodologies on the derivation and use of ratios for R3 references (first review: April 02.)</p> <p>Will be tested using R3 data from various sites. Could be tested by other site teams (e.g. CARE)</p>	Bruce	April 02, 2013 done
5.12	A	<p>Mike to provide to Roy proposals for filtering limits, to be implemented in the NCAR QC procedures, based on the work done in Canada</p>	Mike	March 19 done
6.3	A	<p>Lab test should be added on the agenda for the Davos meeting.</p>	Rodica	19.03.2013 done
5.7	A	<p>Contribution of DAT members</p> <p>Compile list of contributions committed by DAT members. Evaluate the eventual need for assistance.</p>	Eckhard	26.02.2013 Done
5.8	D	<p>Confirmation of contributions (confirmed or tentative) DAT Project Plan (v0.1)</p> <p>Mike/Matteo to co-lead derivation of reference dataset (team: Paul, JohnK, Craig, Yves Alain)</p> <p>Roy/Bruce to co-lead development of inter-site assessment of results (team: JohnK, Mike, Jordy)</p> <p>Craig and Daqing to co-lead development of methodology for reference obs of snow on the ground (Craig busy until the end of May).</p> <p>Eckhard to confirm with Jordy about leading the compilation of input to data QC procedures; (team: John K, Mike)</p> <p>Mareile to lead site-specific methodology/results component (Team: Paul, Yves-Alain, site representatives)</p>		26.02.2013 Done
5.15	A	<p>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.</p>	Eckhard	01.03.2013 Done
5.2	D/A	<p>Future teleconferences to be held on Tuesdays at 14 UTC</p> <p>Eckhard to inform WMO</p>	Eckhard	Done
1.9		<p>Discuss possibility for contracting data analysis expert</p>	SPICE	done
	A	<p>Automatic QC procedures</p> <p>NCAR should provide a list of already implemented QC checks, including ranges etc...</p>	Roy	12.03.13 Done
	A/D	<p>Time tagging</p> <p>Make proposal on time tagging of averages</p> <p>Decision: time tagging: end of interval</p>	Mike	12.02.13 Done

