



Quality Assurance Checklist (QUACK) - reporting

What is QUACK:



- This tool is developed for the showcases of in C3S_422_Lot1_SMHI to promote high quality in each showcase
- For a set of quality indicators it offers you structured questions in combination with guidance material

How to apply QUACK*:

- For each quality indicator you will find assessment questions. Please state if they apply for your showcase.
- For each assessment question; you will find supporting material under: <http://climateservice-global.eu/quality-assurance/>
- Give a short description about how you treated the quality indicators
- Wherever possible – provide any documents, links, scripts, etc. that support your performance
- On completion, upload it to the project google drive folder ‘QUACK_reporting’ in WP5.

Note: Please save the file name as: **Organization_Country_QUACK_reporting (e.g SMHI_Sweden_QUACK_reporting.docx)**

*in case you have any questions contact: maida.zahid@hzg.de



Showcase name: Biodiversity of Tropical Ecosystems in Costa Rica

Short description of a showcase: Costa Rica is part of the narrow terrestrial land bridge connecting North and South America. Due to its unique climatic and geomorphologic setting a great natural wealth is found here. Recently declared a climate change hotspot, Costa Rica's biodiversity is vulnerable to environmental change, thus "climate sensitive areas" must be identified to ensure valuable resources are properly managed.

Organization: University of Costa Rica

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Last update and Place: 2/8/2018, San José, Costa Rica

Dimension: Input data

Criterion: Scientific & methodological quality

Quality indicator	Applied		Short description	Supporting documents	Comments
	Yes	No			
Transparency					
<p>Are all data sources referenced? Please provide which category (observation, simulation, etc) of data you used and the source.</p> <p>Example: Forcing data: Precipitation, Station data, 1 h, 24 stations, national weather service</p> <p>Simulation: GCM data, 50 km resolution; ensemble of five models; RCP 4.5 and 8.5, provided by C3S_422_Lot1_SMHI</p>	X		<p>Observation Data:</p> <ul style="list-style-type: none"> - Precipitation (daily, non-continuous, 1943-2015, 146 stations) - Temperature (monthly averages, unknown reference period, 27 stations) - Source: University of Costa Rica, National Weather Service, National University of Costa Rica, CORBANA S.A., ICafe, AyA. <p>Simulation Data:</p> <ul style="list-style-type: none"> - Precipitation and Temperature (daily, ECV data) 		We, unfortunately, cannot make the raw data openly available due to contract restrictions. Processed data and products will be made public.

<p>Do the metadata follow international standards?</p>					<p>The metadata will follow international standards for the processed data products and climate indicators.</p>
<p>Appropriateness</p>					
<p>Are the used data appropriate for the case study in terms of spatial and temporal scale?</p>	<p>X</p>		<p>The data is the best possible station observation network available.</p>		
<p>Completeness</p>					
<p>Is the technical consistency checked (no outliers, no gaps in time series, etc.)?</p>	<p>X</p>		<p>The station data was quality-checked and outliers removed. Gaps were not filled.</p>		
<p>Do you have all available data sets considered?</p>	<p>X</p>		<p>There is not more station observation data available.</p>		

Dimension: Processing

Criterion: Scientific & methodological quality

Quality indicator	Applied		Short description	Supporting documents	Comments
	Yes	No			
Transparency					
Are the processing steps (i.e. scripts) well documented and reproducible?	X				Coding currently in progress, but we will document the processing steps.
Are the applied methods well documented and follow scientific standards (i.e. peer reviewed)?	X		- Development of a consistent, interpolated grid (1km ² spatial resolution) of observed daily precipitation and temperature data for statistical downscaling and bias-correction (quantile mapping) for the whole of Costa Rica (~50K km ²)		
Appropriateness					
	X				We assume that quantile mapping for bias correction is adequate.

Are the used methods, for instance bias-adjustment, appropriate for the case study?					
Accuracy/Robustness					
Are the uncertainties assessed systematically in a standard manner?	X		<ul style="list-style-type: none"> - Spatial interpolation error assessment - Downscaling and bias-correction errors will also be estimated 		
Is the case study based on different global or regional climate model simulations? In case that not all simulations of an ensemble are used, is the selection well explained and justified?	X		<p>There are no regional climate model simulations available for this project. Models were selected according to Hidalgo, H. and E. Alfaro, 2015. Skill of CMIP5 climate models in reproducing 20th century basic climate features in Central America. Int. J. Climatol. 35: 3397–3421. doi: 10.1002/joc.4216</p>		
Is the showcase using climate emission scenarios i.e. a low, medium and high scenario? (Please specify the name of scenarios used in the showcase).	X				We aim at providing low, medium and high emission scenarios.

Validation					
Is validation possible for the showcase? Is there a procedure in place for a validation against independent data?		X	Validation is not possible at this point since we preferred to include all available stations into the procedure due to the relatively low station density. If more stations become available, validation can be performed.		
Reflectivity					
Is the scientific consistency among multiple data sets and their findings well documented? (i.e. comparing your results to the existing peer reviewed studies in the region)	X		We work together with the Center for Geophysical Research (CIGEFI) at the University of Costa Rica, which is the main outlet of climate-related work in the region to ensure consistency.		
Criterion: Practical Relevance					
Suitability for target group					
Is the relevance for the client assured?	X		The relevance is ensured based on several initial meetings with the client.		

Dimension: Output					
Criterion: Scientific & methodological quality					
Quality indicator	Applied		Short description	Supporting documents	Comments
	Yes	No			
Transparency					
Are the produced results provided with metadata?	X				Products will be made available, but this is still work in progress.
Are the limits of provided information disclosed?	X				Yes, spatial and temporal resolution as well as errors will be given.
Consistency					
About the visualization of your output: Do the graphics and tables of the presentation match the captions and explanations?	X				Up until now, yes, but climate indicators are yet to be included.

Reliability				
Is the confidence of the data presented (e.g. the spread of the whole ensemble)?	X			Will be produced.
Criterion: Practical Relevance				
Lucidity/Clarity				
Is the presentation of your output clear and does it follow visualization standards?	X			We do think so.
Do the pictures, and maps used match the explanation i.e. story?				We do think so.
Rights of Use				
Are the rights of dissemination clarified (i.e. open access)?	X			Clarified in the sense that we can only make certain products available.

Usability				
Is the output intuitively presented and freely accessible?	X			We think it is.
Criterion: Review Process				
Review by third party				
Are the results of the showcases reviewed externally or internally? To what level the review process was taken.	X			The preliminary results were discussed and reviewed by the client.

Dimension: Outcome					
Criterion: Satisfaction					
Quality indicator	Applied		Short description	Supporting documents	Comments
	Yes	No			
Usefulness					
Does the product help for problem solving of your client?	X				It does help problem solving at a longer-term scale.