

Submitted on 2016-03-04 at 11:09 UTC

CCAFS CORE W1_W2 ONLY

Title: (CIP) Statistical Physics Down-Scaling Model (SPDSM) coupled with Crop models

Start date (dd-MM-yyyy)	01-01-2011	End date (dd-MM-yyyy)	31-12-2015
Management liaison	F4 - Flagship 4	Mgmt. liaison contact	Thornton, Philip <p.thornton@cgiar.org>
Lead organization	CIP - Centro Internacional de la Papa - Peru	Project leader	Quiroz, Roberto <r.quiroz@cgiar.org>
Project type	CCAFS CORE	Detailed project workplan	<Not defined>

Project is working on

Flaship(s)	Region(s)
FP4: Policies and Institutions for Climate-Resilient Food Systems	RP EA: East Africa
	Global: Global
	RP LAM: Latin America
	RP WA: West Africa

Bilateral project(s) contributing to this project

This project does not have Bilateral projects

Summary

Crop-simulation models are important tools for assessing the potential implications of seasonal forecasts on agriculture. However, the coarse spatial resolution of global and regional circulation models used in seasonal predictions makes it necessary to downscale these predictions to scales suitable for driving crop models. Non-linear approaches used in this activity are anchored in statistical physics and are hypothesized to better account for physical and orographic processes influencing spatial climatic variability. We expect to deliver products more in line with the demands of users and complementary to other CCAFS downscaling efforts. In collaboration with Climatic research groups, downscaling products will be used as input to crop models to ascertain the performance of downscaling protocols comparing different climate input and contrasting modeling results with historical yield data and expert knowledge. Models will be used to assess how global warming will affect the ability to grow food, at different spatial and temporal scales.

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2. Partners

Partner #1

Institution: CIAT - Centro Internacional de Agricultura Tropical

Contacts

Type	Contact	Responsibilities and contributions
Partner	Kizito, Fred <f.kizito@cgiar.org>	Unfortunately Fred was too busy and could not contribute as expected

Partner #2 (Leader)

Institution: CIP - Centro Internacional de la Papa

Contacts

Type	Contact	Responsibilities and contributions
Project Leader	Quiroz, Roberto <r.quiroz@cgiar.org>	Led the process and contribute to the scientific advancement of the Project and in the publications and dissemination of findings.
Partner	Posadas, Adolfo <a.posadas@cgiar.org>	Activity 2014-268 *Leader*. Activity 2014-269 *Leader*. led the theoretical development of the SPDSM and the development of the software

Partner #3

Institution: UCSB - University of California, Santa Barbara

CCAFS Partner(s) allocating budget: <Not defined>

Contacts

Type	Contact	Responsibilities and contributions
Partner	Jones, Charles <charles.jones@ucsb.edu>	Led all the climatology research and conceptualisation for the SPDSM. They also led the research on the understanding of climate variability and change in the Andes as well as in the publications.

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Partner #4**Institution:** Ministerio de Agricultura y Riego**CCAFS Partner(s) allocating budget:** <Not defined>**Contacts**

Type	Contact	Responsibilities and contributions
Partner	Tello, Jorge <jtello@minagri.gob.pe>	Convene meetings with policy makers to listen to advances in climate change research

Partner #5**Institution:** INIA - Instituto nacional de innovacion agraria**CCAFS Partner(s) allocating budget:** <Not defined>**Contacts**

Type	Contact	Responsibilities and contributions
Partner	Quijandria, Benjamin <bquijandria@inia.gob.pe>	facilitated the introduction of new climate change concepts to agricultural researchers in INIA. Will support the implementation of the tools in the institution and will open the climate change program in INIA

Partner #6**Institution:** SENAMHI - Servicio Nacional de Meteorologia e Hidrologia**CCAFS Partner(s) allocating budget:** <Not defined>**Contacts**

Type	Contact	Responsibilities and contributions
Partner	Placencia, Edson <edsonplacencia@hotmail.com>	Invited Posadas to showcase the methodology in SENAMHI and IGP. Exploring the method to get acquainted with this novel methodology

Partnerships overall performance over the last reporting period: We had great contribution from UCSB. They were very prolific in understanding and publishing the climate

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in the Andes and developed a method to predict the onset, demise and strength of South American Monsoons. This is really crucial in climate science.

Lessons regarding your partnerships and possible implications for the coming reporting cycle: Budget cuts really affected the progress including a graduate student originally financed by CCAFS that we had to look for alternative funding. Unfortunately CCAFS dropped the emphasis on building synergy between climate scientists and CGIAR scientists. This worked well in our partnership with UCSB but budget cut cut this partnership abruptly

3. Locations



4. Outcomes

4.1 Project outcome narrative

Project outcome statement

National Meteorology Services and Agricultural Research Institutes in developing countries have access to a reliable and robust downscaling tool with generic interfaces to couple with crop and hydrology models to generate more realistic climatic-change and climate extremes scenarios. MINAGRI (Peru) will use the information as input for policy making related to climate change and land use. INIA's staff (Peru) will enhance its analytical capacity related to crop productivity and climate change. In close association with CIAT-Africa a similar work will be conducted in Tanzania and Ghana

Annual progress towards outcome (end of 2015): 1) The Peruvian National Meteorology and Hydrology Service (SENAMHI) Publicizes the incorporation of SPDSM tools to their institute and test the applications with WRF data for the High plateau. SENAMHI also uses the WRF downscaled data to assess river flows during the rainy season in the High Plateau. 2) The Peruvian National Innovation Program assesses the impact of climate variability and change on the potato production in the Mantaro Valley, one of the most important agricultural region of the country, using SPDSM and Solanum models, develop by CIP-CCAFS. Information will be incorporated into the discussions for the framing of new policies for the Mantaro Valley. 3) The Met Service in Ghana incorporates the SPDSM into their tools to assess extreme events at approximately 1 km using WRF data

Annual progress towards project outcome in the current reporting cycle (2015): The end product offered to CCAFS was the Statistical Physics Downscaling Model (SPDSM). This was fully accomplished and the fundamental paper was published in the Non-linear Processes in Geophysics in 2015. We are now in the process of testing the model with different users in different countries e.g. the National Meteorology service (SENAMHI) and the Geophysics institute (IGP) in Peru, the Water Center for the Humid Tropics of Latin America and the Caribbean (CATHALAC) as well as ETESA, the met service in Panama, CPTEC / INPE in Brazil and the Meteorological Department of Kenya. We are in contact with these centers for the installation of the model. In addition, the model is being used by a Ph.D. student from India, who is working in the basin of Kabini. A comparative analysis with other methods is being worked with IRI.

Communication and engagement activities have contributed to achieving your Project outcomes: Several communications activities were used, scientific papers, video abstracts seminars and talks in each of the institutions listed and working meetings where SPDSM is showcased. In the case of India, Adolfo Posadas is advising a PhD student in the application of the SPDSM

Evidence documents of progress towards outcomes: [Afiche -Adolfo Posadas.pdf](#)

Annual progress towards outcome (end of 2016): PNIA runs scenarios for the target regions and agricultural activities using the tools developed by CIP-CCAFS. the recharges of water publishes an application featuring a high resolution (1 km) hydro-meteorologic analysis

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highlighting the impact of extreme daily rainfall events (last 15 years) on agriculture and hydrology in the Altiplano Region. This information will be use in the discussions for new policies for the region.

Annual progress towards outcome (end of 2017): <Not defined>

Annual progress towards outcome (end of 2018): <Not defined>

Lessons regarding your Theory of Change and implications for the coming planning cycle; e.g. how have your assumptions changed, or do you have stronger evidence for them: Actually, all the regional models are based on linear's theory and coarse resolution being unable of describing the local climate variability for agricultural applications and mitigation to climate change. With our model developed at highs local resolution and coupled to the relevant regional models, this could be greatly improved. We have preliminary results using our outputs high-resolution raining serving as input for a hydrological model HMS for the Peruvian highlands being the results very hopeful and sure will be for other local models as models of crop yield prediction, construction of scenarios to climate change, etc.

4.2 Contribution to CCAFS Outcomes

RP WA - Outcome 2019: National level decision-makers (Gov. ministries), national agricultural research systems, NGOs, civil society organizations, regional organizations use CCAFS science-derived decision support tools and systems to mainstream climate change into national plans and policies from local to national levels.

Indicator #1: FP4 Indicator: # of equitable national/subnational food system policies enacted that take into consideration climate smart practices and strategies

2019	
Target value: At least one priority watershed in Ghana	Cumulative target to date: Cannot be Calculated
Target narrative: CIP/CIAT/CCAFS will work with Ghana Met Agency and the water resources commission to use 1 km resolution rainfall analyses during the last 15 years and future climate to be included in decision making	
The expected annual gender and social inclusion contribution to this CCAFS Outcome: <Not defined>	

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2015		
<p>Target value: 2014-268- Ghana Met Agency are exposed to the SPDSM and WRF data downscaled with them to 1 km resolution in priority watersheds</p> <p>2014-269- Downscaled WRF used to assess river flow in priority watersheds in Ghana with Ghana Met Agency and the water resources commission</p>	<p>Cumulative target to date: Cannot be Calculated</p>	<p>Target achieved: 0.0</p>
<p>Target narrative: 2014-268- The tools developed in the Andes will be adapted to WA conditions and Met Service staff trained in its use, using WRF as input. Priority watersheds will be selected to run the analysis 2014-269- The project will develop interfaces to use downscaled data to run hydrology models to assess the impact of rainfall events on river flow in priority watersheds</p>		
<p>Narrative for your achieved targets, including evidence: This was not possible due to budget cuts</p>		
<p>The expected annual gender and social inclusion contribution to this CCAFS Outcome: <Not defined></p>		
<p>Narrative for your achieved annual gender and social inclusion contribution to this CCAFS outcome: N/A</p>		

2016		
<p>Target value: Activity 2014-268: At least 1 per participating region (directly). Climate change scenarios, downscaled to 1 km resolution discussed with policy advisors in Ghana</p>	<p>Cumulative target to date: Cannot be Calculated</p>	
<p>Target narrative: CC scenarios provide data at such a coarse resolution that have limited meaning for orienting decisions at the local level. This is particularly important for crops that benefit vulnerable populations e.g. women and the elders</p>		
<p>The expected annual gender and social inclusion contribution to this CCAFS Outcome: <Not defined></p>		

2014		
<p>Target value: <Not defined></p>	<p>Cumulative target to date: 0</p>	<p>Target achieved: <Not defined></p>
<p>Target narrative: <Not defined></p>		
<p>Narrative for your achieved targets, including evidence: <Not defined></p>		
<p>The expected annual gender and social inclusion contribution to this CCAFS Outcome: <Not defined></p>		

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2014

Narrative for your achieved annual gender and social inclusion contribution to this CCAFS outcome: <Not defined>

RP EA - Outcome 2019: National Ministries of Agriculture, Environment and parliamentarians are collaborating to make evidence-informed policies for increased investments in climate resilient food systems.

Indicator #1: FP4 Indicator: # of equitable national/subnational food system policies enacted that take into consideration climate smart practices and strategies

2019

Target value: Activity 2014-268:
At least 1 per participating region
(directly)

Cumulative target to date: Cannot be Calculated

Target narrative: Activity 2014-268: The tools developed in this activity will provide 1-km resolution daily rainfall during the last 15 years and future scenarios as input for detailed scenario analysis (thus reducing the risk of analyzing average spatial condition that often misses the most vulnerable populations) to different stakeholders in the Altiplano region in Peru and in Lushoto, Tanzania. Results will be translated into impact on agriculture and water resources using crop growth and hydrology models. Decision makers will use the tools and information in the design of policies related to climate change mitigation and adaptation and land use.

The expected annual gender and social inclusion contribution to this CCAFS Outcome: <Not defined>

2015

Target value: CCAFS/CIP will run downscaled WRF scenarios 1 km resolution with Tanzania's Met Service for Lushoto.

Cumulative target to date:
Cannot be Calculated

Target achieved: 0.0

Target narrative: Potato is cultivated in the hills of Lushoto where CC scenario even when downscaled by regional models are too coarse to make assessments. Using downscaled data to feed the potato model will provide the CSV better science-based information for making decisions. Conventional and improved varieties, developed to withstand biotic and abiotic stressors induced by climate variability and change will be included in the participatory exercise with different stakeholders.

Narrative for your achieved targets, including evidence: N/A

The expected annual gender and social inclusion contribution to this CCAFS Outcome: <Not defined>

Narrative for your achieved annual gender and social inclusion contribution to this CCAFS outcome: N/A

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2016	
Target value: Sustainability of the potato sector under climate change conditions assessed with the Ministry of Agriculture. The impact of CC on water resources will be included in conversations with the Ministry of the Environment	Cumulative target to date: Cannot be Calculated
Target narrative: Scenarios run with the Met Service and the Potato program using downscaled data and the assessment of yield gap drivers initiated with CCAFS and RTB used as input for national policy debate. A similar analysis will be done with the Ministry of the Environment and other national authorities dealing with water issues.	
The expected annual gender and social inclusion contribution to this CCAFS Outcome: <Not defined>	

2014		
Target value: <Not defined>	Cumulative target to date: 0	Target achieved: <Not defined>
Target narrative: <Not defined>		
Narrative for your achieved targets, including evidence: <Not defined>		
The expected annual gender and social inclusion contribution to this CCAFS Outcome: <Not defined>		
Narrative for your achieved annual gender and social inclusion contribution to this CCAFS outcome: <Not defined>		

RP LAM - Outcome 2019: National governments design and enact equitable food systems policies and strategies taking adaptation into consideration to support national and regional policy and global climate change negotiations. Private institutions develop and support implementation of NAPs and equivalent policies with their respective investment plans addressing climate challenges to increase food security and resilience to changes in climate.

Indicator #1: FP4 Indicator: # of equitable national/subnational food system policies enacted that take into consideration climate smart practices and strategies

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2019	
Target value: Activity 2014-268: At least 1 per participating region (directly) Activity 2014-269: At least 1 per participating region (directly)	Cumulative target to date: Cannot be Calculated
Target narrative: Activity 2014-268: The tools developed in this activity will provide 1-km resolution daily rainfall during the last 15 years and future scenarios as input for detailed scenario analysis (thus reducing the risk of analyzing average spatial condition that often misses the most vulnerable populations) to different stakeholders in the Altiplano region in Peru and in Lushoto, Tanzania. Results will be translated into impact on agriculture and water resources using crop growth and hydrology models. Decision makers will use the tools and information in the design of policies related to climate change mitigation and adaptation and land use.	
The expected annual gender and social inclusion contribution to this CCAFS Outcome: <Not defined>	

2015		
Target value: 2014-269- At least the impact of climate Change on Potato Production in Peruvian Highlands analyzed by the Peruvian National Program on Agricultural Innovation (PNIA) using the tools and methods developed by CCAFS-CIP	Cumulative target to date: Cannot be Calculated	Target achieved: 100.0
Target narrative: PNIA, the recently approved project with \$ 80 M from the World Bank and the Inter-american Development Bank and \$ 83 M from the Peruvian Government will run in early 2015 a fine-tuning targeting and prioritization exercise where the impact of climate extremes and climate change are deemed as important component. They want to revisit what was presented to the donors and have the final decisions on sites and crops that will be of national or regional importance (food and financial security). We have talked to the present director to work together using the tools developed in this project in that exercise using potato as the example and train their staff in the methodology. The analyses will be run jointly with the national Met Service (SENAMHI)		
Narrative for your achieved targets, including evidence: PNIA is delayed in the implementation of the Project due to legal limitations. Nonetheless, we have produced downscaling of WRF scenarios for the Andes and applications with potato (paper in preparation) and in water flow (draft included). The non-linear approach was also used for reducing the uncertainty in a data-reach environment as a proof of concept with an application in the Andes (draft paper included). Other applications of the methodology are either under revision or in the final stage of the preparation of the manuscript which are also included in the repository.		
The expected annual gender and social inclusion contribution to this CCAFS Outcome: <Not defined>		
Narrative for your achieved annual gender and social inclusion contribution to this CCAFS outcome: N/A		

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2016	
Target value: 2014-269- The Analysis of the impact of Climate change on the Agriculture in the Mantaro valley (One of the most important food producer in the high Andes of Peru) included in policy discussions by MINAGRI	Cumulative target to date: Cannot be Calculated
Target narrative: The Mantaro Valley is included in the Agricultural NAMA work we are conducting in FP4, where the focus is the impact of land use change in response to climate variability and market pressures on soil carbon stocks. In addition, PNIA is interested in doing an analysis of the impact of climate change on food production in that region. We are now invited to the technical group discussing climate change and the impact on food security. We hope to use that space to introduce science-derived decision support tools to influence the discussions and hopefully the plans and policies made by MINAGRI	
The expected annual gender and social inclusion contribution to this CCAFS Outcome: <Not defined>	

2014		
Target value: <Not defined>	Cumulative target to date: 0	Target achieved: <Not defined>
Target narrative: <Not defined>		
Narrative for your achieved targets, including evidence: <Not defined>		
The expected annual gender and social inclusion contribution to this CCAFS Outcome: <Not defined>		
Narrative for your achieved annual gender and social inclusion contribution to this CCAFS outcome: <Not defined>		

4.3 Other Contributions

Contribution to other CCAFS Impact Pathways

Activity 2014-268: Met services in Peru improve the quality of their information at a high spatial and temporal resolution to support rural communities (through AGROCLIMAS)

Activity 2014-268: Flagship 1 and 2 will benefit with daily climatic information at very high spatial resolution for their CSA, insurance and safety nets analyses

Activity 2014-269: Flagships 1 and 2 will benefit from the information at high temporal and spatial resolutions generated here

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Collaborating with other CRPs

Roots, Tubers and Bananas
Description of collaboration: Tools developed with CCAFS are in use in the modelling of climate variability and change of RT crops
The achieved outcome contributions: <Not defined>

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4.4 Outcome case studies

There is not an Outcome Case Study added.

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5. Project outputs

5.1 Overview by MOGs

Major Output groups - 2019

FP4 - MOG # 2: Priority setting contextualised with national stakeholders and capacity strengthened to apply outputs in policy formulation; including trade-off analyses, foresight activities, and quantification of regional socio-economic scenarios

Brief bullet points of your expected annual 2019 contribution towards the selected MOG

<Not defined>

Brief plan of the gender and social inclusion dimension of the expected annual output

<Not defined>

Major Output groups - 2014

FP4 - MOG # 2: Priority setting contextualised with national stakeholders and capacity strengthened to apply outputs in policy formulation; including trade-off analyses, foresight activities, and quantification of regional socio-economic scenarios

Brief bullet points of your expected annual 2014 contribution towards the selected MOG

<Not defined>

Brief summary of your actual 2014 contribution towards the selected MOG:

<Not defined>

Brief plan of the gender and social inclusion dimension of the expected annual output

<Not defined>

Summary of the gender and social inclusion dimension of the 2014 outputs:

<Not defined>

Major Output groups - 2015

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FP4 - MOG # 2: Priority setting contextualised with national stakeholders and capacity strengthened to apply outputs in policy formulation; including trade-off analyses, foresight activities, and quantification of regional socio-economic scenarios

Brief bullet points of your expected annual 2015 contribution towards the selected MOG

<Not defined>

Brief summary of your actual 2015 contribution towards the selected MOG:

The Minister of the environment, Peru was very impressed with the findings and requested joint policy briefs. CATHOLIC is interested in testing the methodology in Central America. Negotiations and fund raising on the way.

Brief plan of the gender and social inclusion dimension of the expected annual output

<Not defined>

Summary of the gender and social inclusion dimension of the 2015 outputs:

N/A

Major Output groups - 2016

FP4 - MOG # 2: Priority setting contextualised with national stakeholders and capacity strengthened to apply outputs in policy formulation; including trade-off analyses, foresight activities, and quantification of regional socio-economic scenarios

Brief bullet points of your expected annual 2016 contribution towards the selected MOG

<Not defined>

Brief plan of the gender and social inclusion dimension of the expected annual output

<Not defined>

Lessons regarding your major outputs groups (MOGs) and possible implications for the coming planning cycle: When you start from scratch developing a methodology time and patience is needed. Publishing the backbone paper in Non-linear Processes in Geophysics, peer-review by top physicists to make sure the science behind the method was right had a long process from submission to publication; almost two years. We have shown that the SPDSM is an improvement over contemporary methods. We are working on several applications on agriculture and water resources to publicise the methodology. By cutting this area of research I hope CCAFS is not throwing the baby with the bath water.

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5.2 Deliverables

Deliverable #1

Main Information	
Title: Comparative applications with alternative tools in agriculture and Hydrology both in Peru and Ghana	
MOG # 2: Priority setting contextualised with national stakeholders and capacity strengthened to apply outputs in policy formulation; including trade-off analyses, foresight activities, and quantification of regional socio-economic scenarios	
Main Type: Data and information outputs, including datasets, databases and models	Sub Type: Data
Year of expected completion: 2015	
Status: On-going	Justification for cancelling the deliverable: Postponed due to budgetary cuts

Next-user
Water authorities in Peru and Ghana, INIA and MINAGRI in Peru
Knowledge, attitude, skills and practice changes expected in next-user: We will train staff from the Hydrology Service and the Agricultural Innovation Program (PNIA) in Peru for them to enable them to use downscaled data for hydrology and crop modeling under changing climatic conditions. We will seek a similar arrangement in Ghana with WLE funds due to CCAFS budget cuts.
Strategies (facilitation, engagement, knowledge sharing etc.) will be used to encourage and enable next-user to utilize deliverables and adopt changes: Hands-on workshops, online help and through publications.

Partners contributing to this deliverable
Partner #1 (Responsible): Quijandria, Benjamin <bquijandria@inia.gob.pe>, INIA - Instituto nacional de innovacion agraria

Deliverable Ranking	
Address gender and social inclusion aspect	<Not defined>
Potential for/ actual contribution to outcomes	<Not defined>
Level of shared ownership (partnerships across org.)	<Not defined>
What is your personal perspective of the importance of this product	<Not defined>

Deliverable dissemination
Open access restriction: <Not defined>
License adopted: <Not defined>

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Dissemination Channel: -1
Dissemination URL: <Not defined>

Deliverable Metadata
Description: <Not defined>
Creator / Authors: <Not defined>
Author Identifier: <Not defined>
Publication / Creation date: <Not defined>
Language: <Not defined>
Coverage: <Not defined>

Deliverable Data sharing
Deliverable files <Not defined>

Deliverable #2

Main Information
Title: SPDSM software and data reconstruction tools
MOG # 2: Priority setting contextualised with national stakeholders and capacity strengthened to apply outputs in policy formulation; including trade-off analyses, foresight activities, and quantification of regional socio-economic scenarios
Main Type: Data and information outputs, including datasets, databases and models
Sub Type: Data
Year of expected completion: 2015
Status: Complete

Next-user
SENAMHI PNIA-INIA & MINAGRI Peru
Knowledge, attitude, skills and practice changes expected in next-user: Met Services in Peru, Tanzania, and Ghana use historical data at high spatial resolution to assess the impact of extreme events in agriculture. Training on SPDSM to SENAMHI. Training PNIA staff in the use of crop growth models fed with downscaled data produced in conjunction with SENAMHI
Strategies (facilitation, engagement, knowledge sharing etc.) will be used to encourage and enable next-user to utilize deliverables and adopt changes: Translational research Workshops, online support plus publications.

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Partners contributing to this deliverable

Partner #1 (Responsible): Placencia, Edson <edsonplacencia@hotmail.com>, SENAMHI - Servicio Nacional de Meteorología e Hidrología

Deliverable Ranking

Address gender and social inclusion aspect	1
Potential for/ actual contribution to outcomes	5
Level of shared ownership (partnerships across org.)	5
What is your personal perspective of the importance of this product	5

Deliverable dissemination

Open access restriction: Yes
License adopted: <Not defined>
Dissemination Channel: -1
Dissemination URL: <Not defined>

Deliverable Metadata

Description: Software written in MatLab. Version in C++ in progress
Creator / Authors: A. Posada, L.Duffaut, R.Quiroz
Author Identifier: N/A
Publication / Creation date: 2015
Language: en
Coverage: Global

Deliverable Data sharing

Deliverable files <Not defined>

Deliverable #3

Main Information

Title: Scientific publications

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MOG # 2: Priority setting contextualised with national stakeholders and capacity strengthened to apply outputs in policy formulation; including trade-off analyses, foresight activities, and quantification of regional socio-economic scenarios

Main Type: Peer reviewed Publications

Sub Type: Peer-reviewed journal articles

Year of expected completion: 2015

Status: Complete

Next-user

Science and development communities of practice

Knowledge, attitude, skills and practice changes expected in next-user: Impact of extreme events and climate change scenarios on agriculture and water resources revisited and published using new access to high spatial resolution climatic data.

Strategies (facilitation, engagement, knowledge sharing etc.) will be used to encourage and enable next-user to utilize deliverables and adopt changes: Translational research workshops with different stakeholders.

Partners contributing to this deliverable

Partner #1 (Responsible): Jones, Charles <charles.jones@ucsb.edu>, UCSB - University of California, Santa Barbara

Deliverable Ranking

Address gender and social inclusion aspect	1
Potential for/ actual contribution to outcomes	5
Level of shared ownership (partnerships across org.)	5
What is your personal perspective of the importance of this product	5

Deliverable dissemination

Open access restriction: Yes

License adopted: <Not defined>

Dissemination Channel: other

Dissemination URL: [<Not defined>](#)

Deliverable Metadata

Description: Spatial random downscaling of rainfall signals in Andean heterogeneous terrain

Creator / Authors: APosadas, LDuffaut, CYarlequé, MCarbajal, HHeidinger, LCarvalho, C. Jones, RQuiroz

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Author Identifier: Scopus
Publication / Creation date: July 15, 2015
Language: en
Coverage: Global

Deliverable Data sharing
npg-22-383-2015.pdf

Deliverable #4

Main Information
Title: Scientific Publication
MOG # 2: Priority setting contextualised with national stakeholders and capacity strengthened to apply outputs in policy formulation; including trade-off analyses, foresight activities, and quantification of regional socio-economic scenarios
Main Type: Peer reviewed Publications
Sub Type: Peer-reviewed journal articles
Year of expected completion: 2015
Status: Complete

Next-user
Scientist
Knowledge, attitude, skills and practice changes expected in next-user: Use of methodologies described in the paper.
Strategies (facilitation, engagement, knowledge sharing etc.) will be used to encourage and enable next-user to utilize deliverables and adopt changes: Scientific paper to be read by scientist

Partners contributing to this deliverable
Partner #1 (Responsible): Jones, Charles <charles.jones@ucsb.edu>, UCSB - University of California, Santa Barbara

Deliverable Ranking	
Address gender and social inclusion aspect	1
Potential for/ actual contribution to outcomes	5
Level of shared ownership (partnerships across org.)	5

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What is your personal perspective of the importance of this product	5
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Deliverable dissemination
Open access restriction: Yes
License adopted: <Not defined>
Dissemination Channel: -1
Dissemination URL: <Not defined>

Deliverable Metadata
Description: Precipitation over eastern South America and the South Atlantic Sea surface temperature during neutral ENSO periods
Creator / Authors: Rodrigo J. Bombardi, Leila M. V. Carvalho, Charles Jones, Michelle S. Reboita
Author Identifier: SCOPUS
Publication / Creation date: 2013
Language: en
Coverage: South America

Deliverable Data sharing
Bombardi_Clim_Dyn_SAD_2013.pdf

Deliverable #5

Main Information	
Title: Scientific Publication	
MOG # 2: Priority setting contextualised with national stakeholders and capacity strengthened to apply outputs in policy formulation; including trade-off analyses, foresight activities, and quantification of regional socio-economic scenarios	
Main Type: Peer reviewed Publications	Sub Type: Peer-reviewed journal articles
Year of expected completion: 2015	
Status: Complete	
Next-user	
Climate Science Researchers	

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Knowledge, attitude, skills and practice changes expected in next-user: New methodology will be adopted by scientist

Strategies (facilitation, engagement, knowledge sharing etc.) will be used to encourage and enable next-user to utilize deliverables and adopt changes: Presentation and scientific symposia

Partners contributing to this deliverable

Partner #1 (Responsible): Jones, Charles <charles.jones@ucsb.edu>, UCSB - University of California, Santa Barbara

Deliverable Ranking

Address gender and social inclusion aspect	1
Potential for/ actual contribution to outcomes	5
Level of shared ownership (partnerships across org.)	5
What is your personal perspective of the importance of this product	5

Deliverable dissemination

Open access restriction: Yes

License adopted: <Not defined>

Dissemination Channel: -1

Dissemination URL: [<Not defined>](#)

Deliverable Metadata

Description: Simulating the influence of the South Atlantic dipole on the South Atlantic convergence zone during neutral ENSO

Creator / Authors: Rodrigo J. Bombardi & Leila M. V. Carvalho Charles Jones

Author Identifier: SCOPUS

Publication / Creation date: 2014

Language: en

Coverage: Global

Deliverable Data sharing

Deliverable files

<Not defined>

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Deliverable #6

Main Information	
Title: Scientific Publication	
MOG # 2: Priority setting contextualised with national stakeholders and capacity strengthened to apply outputs in policy formulation; including trade-off analyses, foresight activities, and quantification of regional socio-economic scenarios	
Main Type: Peer reviewed Publications	Sub Type: Peer-reviewed journal articles
Year of expected completion: 2015	
Status: Complete	

Next-user
Meteorologist, climatologist and meteorological services
Knowledge, attitude, skills and practice changes expected in next-user: Use of the information by meteorologists
Strategies (facilitation, engagement, knowledge sharing etc.) will be used to encourage and enable next-user to utilize deliverables and adopt changes: Climatologist community of practice

Partners contributing to this deliverable
Partner #1 (Responsible): Jones, Charles <charles.jones@ucsb.edu>, UCSB - University of California, Santa Barbara

Deliverable Ranking	
Address gender and social inclusion aspect	1
Potential for/ actual contribution to outcomes	5
Level of shared ownership (partnerships across org.)	5
What is your personal perspective of the importance of this product	5

Deliverable dissemination
Open access restriction: Yes
License adopted: <Not defined>
Dissemination Channel: -1
Dissemination URL: <Not defined>

Deliverable Metadata

Submitted on 2016-03-04 at 11:09 UTC

Description: CMIP5 Simulations of Low-Level Tropospheric Temperature and Moisture over the Tropical Americas
Creator / Authors: LEILA M. V. CARVALHO, CHARLES JONES
Author Identifier: SCOPUS
Publication / Creation date: 2013
Language: en
Coverage: Tropical Americas

Deliverable Data sharing
Carvalho_Jones_2013_cmip5_JCLI-D-12-00532.pdf

Deliverable #7

Main Information	
Title: Scientific Publication	
MOG # 2: Priority setting contextualised with national stakeholders and capacity strengthened to apply outputs in policy formulation; including trade-off analyses, foresight activities, and quantification of regional socio-economic scenarios	
Main Type: Peer reviewed Publications	Sub Type: Peer-reviewed journal articles
Year of expected completion: 2015	
Status: Complete	

Next-user
Scientists
Knowledge, attitude, skills and practice changes expected in next-user: Increased knowledge
Strategies (facilitation, engagement, knowledge sharing etc.) will be used to encourage and enable next-user to utilize deliverables and adopt changes: Scientific Fora

Partners contributing to this deliverable
Partner #1 (Responsible): Jones, Charles <charles.jones@ucsb.edu>, UCSB - University of California, Santa Barbara

Deliverable Ranking	
Address gender and social inclusion aspect	1

Submitted on 2016-03-04 at 11:09 UTC

Potential for/ actual contribution to outcomes	5
Level of shared ownership (partnerships across org.)	5
What is your personal perspective of the importance of this product	5

Deliverable dissemination
Open access restriction: Yes
License adopted: <Not defined>
Dissemination Channel: -1
Dissemination URL: <Not defined>

Deliverable Metadata
Description: Multiannual-to-decadal variability of the American monsoons: present climate and CMIP5 projections
Creator / Authors: Leila M. V. Carvalho and Charles Jones
Author Identifier: SCOPUS
Publication / Creation date: 2013
Language: en
Coverage: Regional

Deliverable Data sharing
clivar.contribution_newsletter.2013.pdf

Deliverable #8

Main Information	
Title: Scientific Publication	
MOG # 2: Priority setting contextualised with national stakeholders and capacity strengthened to apply outputs in policy formulation; including trade-off analyses, foresight activities, and quantification of regional socio-economic scenarios	
Main Type: Peer reviewed Publications	Sub Type: Peer-reviewed journal articles
Year of expected completion: 2015	
Status: Complete	

Submitted on 2016-03-04 at 11:09 UTC

Next-user
Scientists and meteorologists
Knowledge, attitude, skills and practice changes expected in next-user: Adoption of new analytical techniques
Strategies (facilitation, engagement, knowledge sharing etc.) will be used to encourage and enable next-user to utilize deliverables and adopt changes: Dissemination of results to meteorological services

Partners contributing to this deliverable
Partner #1 (Responsible): Quiroz, Roberto <r.quiroz@cgiar.org>, CIP - Centro Internacional de la Papa

Deliverable Ranking	
Address gender and social inclusion aspect	1
Potential for/ actual contribution to outcomes	5
Level of shared ownership (partnerships across org.)	5
What is your personal perspective of the importance of this product	5

Deliverable dissemination
Open access restriction: Yes
License adopted: <Not defined>
Dissemination Channel: -1
Dissemination URL: <Not defined>

Deliverable Metadata
Description: TRMM rainfall correction over the Andean Plateau using wavelet multi resolution analysis
Creator / Authors: Haline Heidinger, Christian Yarlequé, Adolfo Posadas, Roberto Quiroz
Author Identifier: SCOPUS
Publication / Creation date: 2012
Language: en
Coverage: Regional

Deliverable Data sharing
Heidinger_et_all_2012.pdf

Submitted on 2016-03-04 at 11:09 UTC

Submitted on 2016-03-04 at 11:09 UTC

5.3 Summary on next-users

Next user #1
<p>Key next user for the current reporting period. Key game changers. Observed Knowledge, Attitude, Skills and practice changes: National and regional meteorological services and meteorology/climatology professors and students. We initiated with exposure to the SPDSM showing advantages over current downscaling methods. Adoption of complex methods even for meteorologists take some time and mentoring. The process initiated and we need to find funding to accompany the process. The future is uncertain but we trust that the robustness of the methodology can attract the interest of donors</p>
<p>Strategies (facilitation, engagement, knowledge sharing etc.) you used to encourage and enable this next user to utilize deliverables and adopt changes: Seminar in meet service institutions in several countries, a publication of PPT with audio narrative, involvement of graduate students.</p>
<p>Reported deliverables serve as evidence towards this achieved change: PPT of presentation and announcement of seminars</p>
<p>Lessons and implications for the next planning cycle: Without funding it is impossible to continue unless additional funding is secured. We are in that process.</p>

Submitted on 2016-03-04 at 11:09 UTC

5.4 Project highlights

Submitted on 2016-03-04 at 11:09 UTC

6. Activities

Activity #1	
Title: Adaptation of the SPDSM to run with data from the Weather Research Forecasting model (WRF) (proof of concepts initiated in 2014)	
Description: The SPDSM model was developed and tested using data from the Tropical Rainfall Measuring Mission (TRMM). In October 2014 the adaptation to use WRF data will be initiated. If feasible, we will try working with CIAT group working with PRECIS as well.	
Start date (dd-MM-yyyy): 01-01-2015	End date (dd-MM-yyyy): 31-12-2015
Leader: Posadas, Adolfo <a.posadas@cgiar.org>, CIP - Centro Internacional de la Papa	
Status: Complete	

Activity #2	
Title: Develop and test interfaces to use rainfall downscaled data with crop and hydrology models	
Description: SPDSM is expected to produce daily gridded data to a resolution of approximately 1 km. In this activity we propose testing the advantage of downscaling rainfall data on assessing potato yield as well as river flow data. This last application will be in collaboration with CIAT within WLE.	
Start date (dd-MM-yyyy): 01-01-2015	End date (dd-MM-yyyy): 31-12-2015
Leader: Posadas, Adolfo <a.posadas@cgiar.org>, CIP - Centro Internacional de la Papa	
Status: Extended	Justification: Looking for funds to finalise work with CIAT and IRI. A manuscript will be produced in 2016

Lessons regarding your project activities and possible implications for the coming planning cycle: Budget cuts hampered the total fulfilment of this activity. We initiated work with CIAT and IRI. We are seeking for additional funding to full implementation

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7. Leverages

<Not defined>