Geophysical Research Abstracts
Vol. 15, EGU2013-1244, 2013
EGU General Assembly 2013

Beyond the model democracy: observational constraints indicate risk of drying in the Amazon basin

Hideo Shiogama (1), Seita Emori (1), Naota Hanasaki (1), Manabu Abe (1), Yuji Masutomi (2), Kiyoshi Takahashi (1), and Toru Nozawa (1)

(1) National Institute for Environmental Studies, Tsukuba, Ibaraki, Japan.(shiogama.hideo@nies.go.jp), (2) Center for Environmental Science in Saitama, Kisai Town, Kita-Saitama-gun, Saitama, Japan

Climate warming due to human activities will be accompanied by hydrological cycle changes. Economies, societies and ecosystems in South America (SA) are vulnerable to such water resource changes. Hence, water resource impact assessments for SA, and corresponding adaptation and mitigation policies, have attracted increased attention. However, substantial uncertainties remain in the current water resource assessments that are based on multiple coupled Atmosphere Ocean General Circulation models. This uncertainty varies from significant wetting to catastrophic drying. By applying a statistical method, we characterised the uncertainty and identified global-scale metrics for measuring the reliability of water resource assessments in SA. Here we show that, whereas the ensemble mean assessment suggested wetting across most of SA, the observational constraints indicate a higher probability of drying in the Amazon basin. Naive over-reliance on the consensus of models can lead to inappropriate decision making.

Reference:
Shiogama, H. et al. Observational constraints indicate risk of drying in the Amazon basin. Nature Communications 2:253 doi: 10.1038/ncomms1252 (2011).