Results from IPWG Japan Validation Site

Shoichi Shige (1), Munehisa K. Yamamoto (1), Asaka Sugimoto (1), Tomoaki Mega (2), Tomoo Ushio (2), Takuji Kubota (3) and Misako Kachi (3) **Affiliations: (1) Kyoto University (2) Osaka University (3) JAXA/EORC**

For several years, the IPWG Japan validation site has been producing standard, daily validation metrics for several different products based on satellite algorithms and numerical models in near real time, with reference to a ground radar dataset calibrated by rain gauges. A summary of the results from the archive based on the product that was available at the time of the comparison are given, focusing near real-time satellite products (3B42RT and GSMaP_NRT), and model forecasts (ECMWF, JMA, BOM, and METEOFR).





Satellite products perform best over ocean and model forecasts perform best over land.

VIETEOFR

0.2

2011/1/1

2012/1/1

2013/1/1

General trends of the performance of satellite products and model forecasts agree with the results from other IPWG site validation, but model forecasts show a stable performance through the year.

2013/1/1

2014/1/

2012/1/1

Case Study of rainfall associated with a Baiu front on June 16, 2011

2014/1/1

2011/1/1





Areal fraction 100% s	856	552	∦ gridpoints raining	Anolysed JMA 1654 7.0	2039	RMS error = 15.0 Correlation coeff = 0.406 Frequency bias = 1.233	055 O 075 Areal fraction 10075 S <1 Daily fraction of total rain	700	708	∰ gridpoints raining Average rain	 1654 7.9	2085 7.2	RMS error = 10.3 Correlation coeff = 0.775 Frequency bias = 1.261	Obs 0% Areal fraction 100%	0 b <1 e <1	1136	272	∦ gridpoints raining Average rain	1654 134 7.9 4.	RMS error = 14.0 Correlation coeff = 0.546 Frequency bias = 0.810
action of total rain	1 167	1487	Conditional rain Rain volume (mm•km²x10*) Maximum rain	14.6 15.2	9.2 11.8	Probability of detection = 0.899 False alarm ratio = 0.271 Hanssen & Kuipers score = 0.507	Est V Obs	277	1377	Conditional rain Rain volume (mm•km²x10*) Maximum rain	14.6 15.2 160.3	10.5 13.8 105.6	Probability of detection = 0.833 Folse alarm ratio = 0.340 Hanssen & Kuipers scare = 0.330	Est	r v e ≧1 d	586	1068	Conditional rain Rain volume (mm+km*x10*) Maximum rain	14.6 9. 15.2 8. 160.3 39.	Probability of detection = 0.646 False alarm ratio = 0.203 Hanssen & Kuipers score = 0.453
		lfor	ecasts nerf	forme	ed k	better than nea	nr real-time sate	ellite	e pr	oducts for th	his d	as	e during warr	n season wł	nich	hac	l ra	infall over od	ean.	
Some m	nde																			











0.3

2011/1/1

2012/1/1

2013/1/1

Average rain 7.9 6.1 Frequency bias = 1.233 Doily fraction of total rain 7.9 7.2 Prequency bias = 1.261 Average rain 7.9 6.1 Frequency bias = 1.233 Doily fraction of total rain 7.9 7.2 Prequency bias = 1.261 V 21 167 1487 Average rain 7.9 6.1 Frequency bias = 1.233 Doily fraction of total rain 6.1 Probability of detection = 0.833 V 21 167 1487 Rain volume (mm*km*x10*) 15.2 11.8 False alarm ratio = 0.271 058 1068 Rain volume (mm*km*x10*) 15.2 8.0 False alarm ratio = 0.203 Maximum rain 160.3 57.6 Hanssen & Kuipers score = 0.203 160.3 39.8 Hanssen & Kuipers score = 0.203 Est 160.3 39.8 Hanssen & Kuipers score = 0.285	Areal fraction 100% < <1 856	552	Analysed JMA	2039	Mean abs error = 7.2 RMS error = 15.0 Correlation coeff = 0.406	Obs Ot Areal fraction 100% s <1	700	708	Analyse	ed BOM 1654	2085	RMS error = 10.3 Correlation coeff = 0.775	Obs 0% Areal fraction 100%	0 b s <1	1136	272	Analyse # gridpoints raining	ed METOFR 1654	R R 1340 C	MS error = 14.0 orrelation coeff = 0.546
Reinfall accumulation by amount	raction of total rain v e ≥1 167	1487	Average rain 7.9 Conditional rain 14.6 Rain volume (mm*km*x10*) 15.2 Maximum rain 160.3	6.1 9.2 11.8 57.6	Frequency bias = 1.233 Probability of detection = 0.899 False alarm ratio = 0.271 Hanssen & Kuipers score = 0.507	Daily fraction of total rain r Est U Obs	277	1377	Average rain Conditional rain Rain volume (mm•km²x10°) Maximum rain	7.9 14.6 15.2 160.3 1	7.2 10.5 13.8 105.6	Probability of detection = 0.833 False alarm ratio = 0.340 Hanssen & Kuipers score = 0.330	Daily fraction of total rain Est	e r v e ≧1 d	586	1068	Average rain Conditional rain Rain volume (mm•km²x10°) Maximum rain	7.9 14.6 15.2 160.3	4.2 Fi 9.5 P 8.0 Fi 39.8 H	requency bias = 0.810 robability of detection = 0.646 blse alarm ratio = 0.203 anssen & Kuipers score = 0.453