

Evaluation of East Asian summer monsoon precipitation in reanalyses

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INTRODUCTION

Rain band appeared in East Asian summer monsoon is called Baiu in Japan, Chngma in Korea, Meiyu in China. Reproducibility of this rain band by three reanalyses are evaluated with three different observational data. Monthly data of reanalyses and observation are used for comparison.

DATA

Monthly precipitation data from three reanalyses (Table 1) are compared with observational data (Table 2).

Table 1. Monthly precipitation data of three reanalyses.

Name	Institution	Period	Model	Precipitation	Reference
ERA-40	ECMWF	1979-1998	TL159L60	12UTC initial 12-36 hour forecast	Simmons and Gibson 2000
NCEP-2	NCEP-DOE	1979-1998	T62L28	00, 06, 12, 18UTC initial 0-6 hour forecast	Kanamitsu et al. 2002
JRA-25	JMA/CRIEPI	1979-1998	T106L40	00, 06, 12, 18UTC initial 0-6 hour forecast	Onogi et al. 2007

Table 2. Monthly precipitation data of three observational data

Name	Period	Horizontal resolution	Reference
CMAP	1979-1998	2.5 degree	Xie and Arkin 1997
GPCP	1979-1998	2.5 degree	Adler et al. 2003
GPCP1DD	1997-2003	1.0 degree	Huffman et al. 2001

RESULTS

Figure 1 shows geographical distribution of precipitation climatology for June. In June, precipitation of NCEP-2 and JRA-25 is smaller than observation over Japan (Baiu) and Korea (Changma). Figure 2 shows geographical distribution of precipitation climatology for July. In July, precipitation of NCEP-2 is smaller than observation over Japan and Korea.

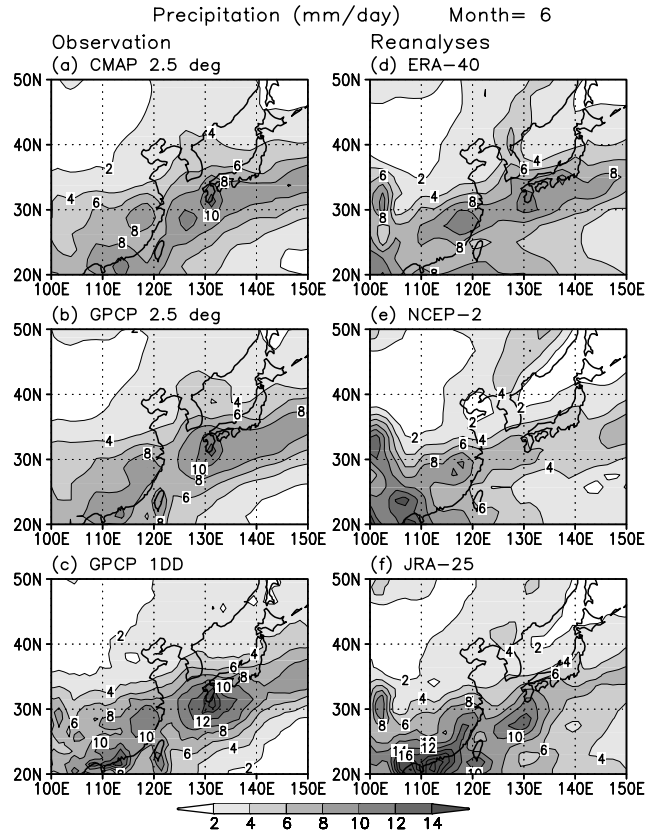


Figure 1 June precipitation

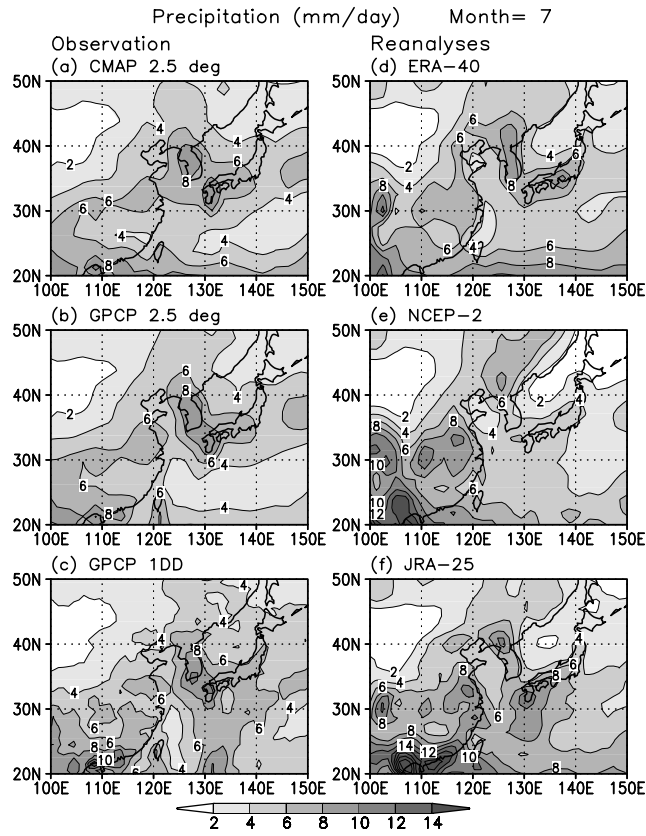


Figure 2 July precipitation

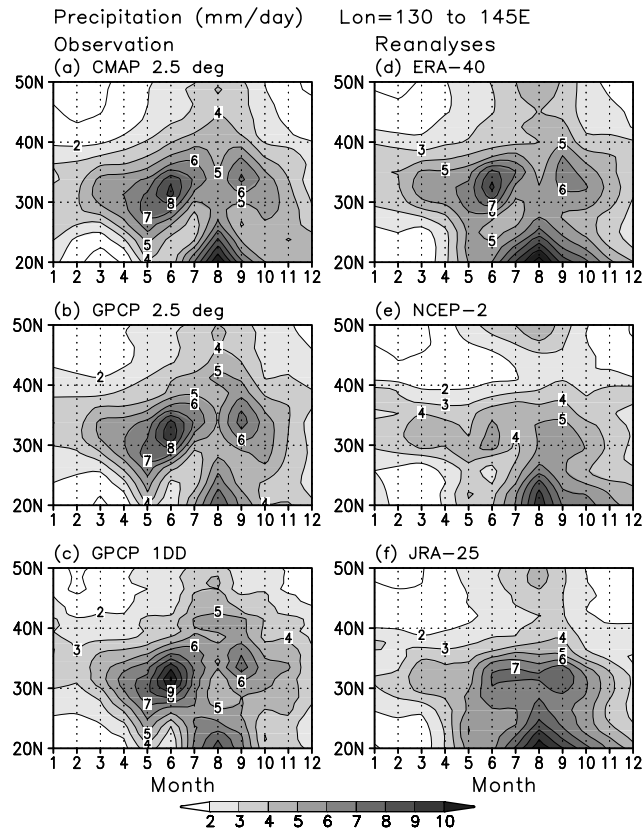


Figure 3 Seasonal march of precipitation averaged from 130E to 145E (Japan)

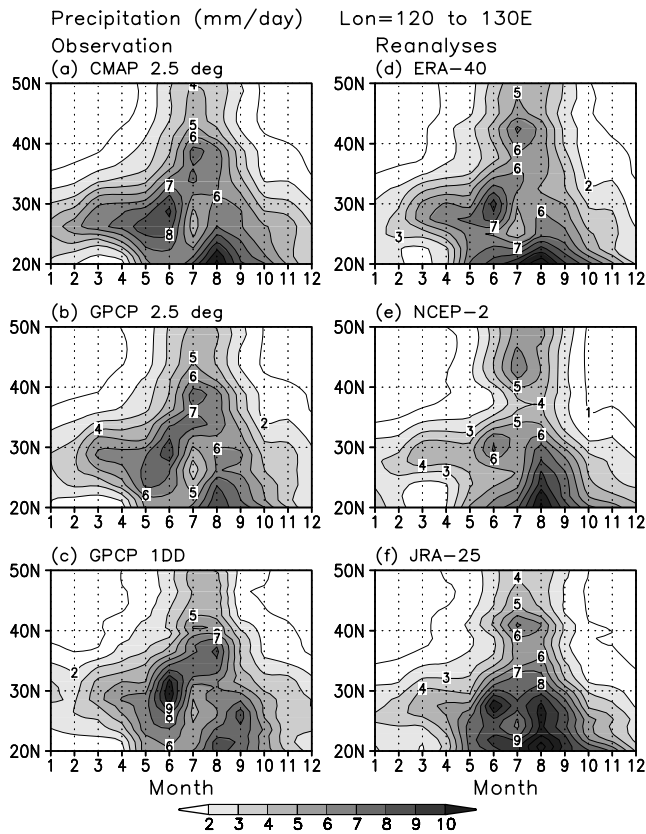


Figure 4 Seasonal march of precipitation averaged from 120E to 130E (Korea)

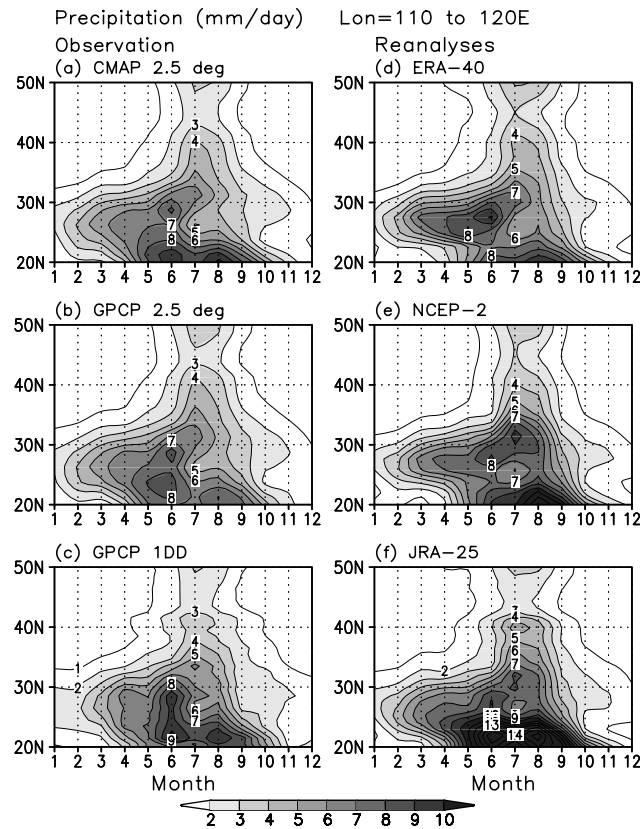


Figure 5 Seasonal march of precipitation averaged from 110E to 120E (China)

Figure 3-5 shows seasonal march of precipitation over Japan, Korea and China, respectively. ERA-40 realistically reproduce the seasonal march of East Asian summer rain band (Baiu, Changma, Meiyu).

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