Development and evaluation of the gauge adjusted GSMaP

Tomoo Ushio, and Tomoaki Mega

(Osaka University)
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   Global Precipitation Climatology Centre (GPCC)

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Monthly rainfall July 2010

CPC and GPCC show a similar trend.
Details are different.
Monthly rainfall August 2010

CPC and GPCC show a similar trend.
Details are different.
Monthly rainfall September 2010

CPC and GPCC show a similar trend.
Details are different.
Scatter plot of monthly rainfall (CPC vs GPCC)

Red and blue points indicate rainfall of each grid. Blue indicates difference of CPC and GPCC larger than 300 mm/month.

Mean monthly rainfall
GPCC 84.3 mm/month
CPC 74.4 mm/month
CPC is less than 8.2% of GPCC.
Number density of monthly precipitation

CPC precipitation is similar to GPCC precipitation in many grids (from yellow to red grids).

Rainfall of GPCC are more than rainfall of CPC (from blue to black).
Zonal Mean precipitation of CPC and GPCC

Zonal mean precipitation of CPC is almost lower than zonal mean precipitation of GPCP.
Difference of monthly precipitation between CPC and GPCC
Large difference of precipitation amount (>300mm/month)

equatorial region, south Asia and south east Asia
New Zealand north America in September.
Don’t limit equatorial region and developing country.

Treatment of heavy precipitation can be different between CPC and GPCC.
Scatter plot of daily rainfall
Radar AMeDAS vs CPC

Rader AMeDAS is regrided 0.5 degree.
Zonal mean precipitation over land

2010/7

GSMaP MVK → under estimation than CPC.
GSMaP Gauge → over estimation than CPC.

2010/8

2010/9
降水マップ

Change of GSMaP Gauge

1. Remove scatted precipitation
2. Precipitation region is fixed CPC precipitation region. Precipitation intensity changed ever hour.
GSMaP Gauge and MVK CPC

Correlation coefficient

<table>
<thead>
<tr>
<th></th>
<th>GSMaP MVK</th>
<th>GSMaP Gauge</th>
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</thead>
<tbody>
<tr>
<td>July</td>
<td>0.54</td>
<td>0.93</td>
</tr>
<tr>
<td>August</td>
<td>0.52</td>
<td>0.93</td>
</tr>
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Form of GSMaP Gauge estimated precipitation region is gridded. Change precipitation area is dramatically at 12UTC because gauge data is changed at the time. Precipitation region is not change, However, precipitation intensity was change every hour.
GSMaPによる日本付近の推定降雨

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