Verification of Satellite Derived Monthly Rain Rate Fields in Siberia

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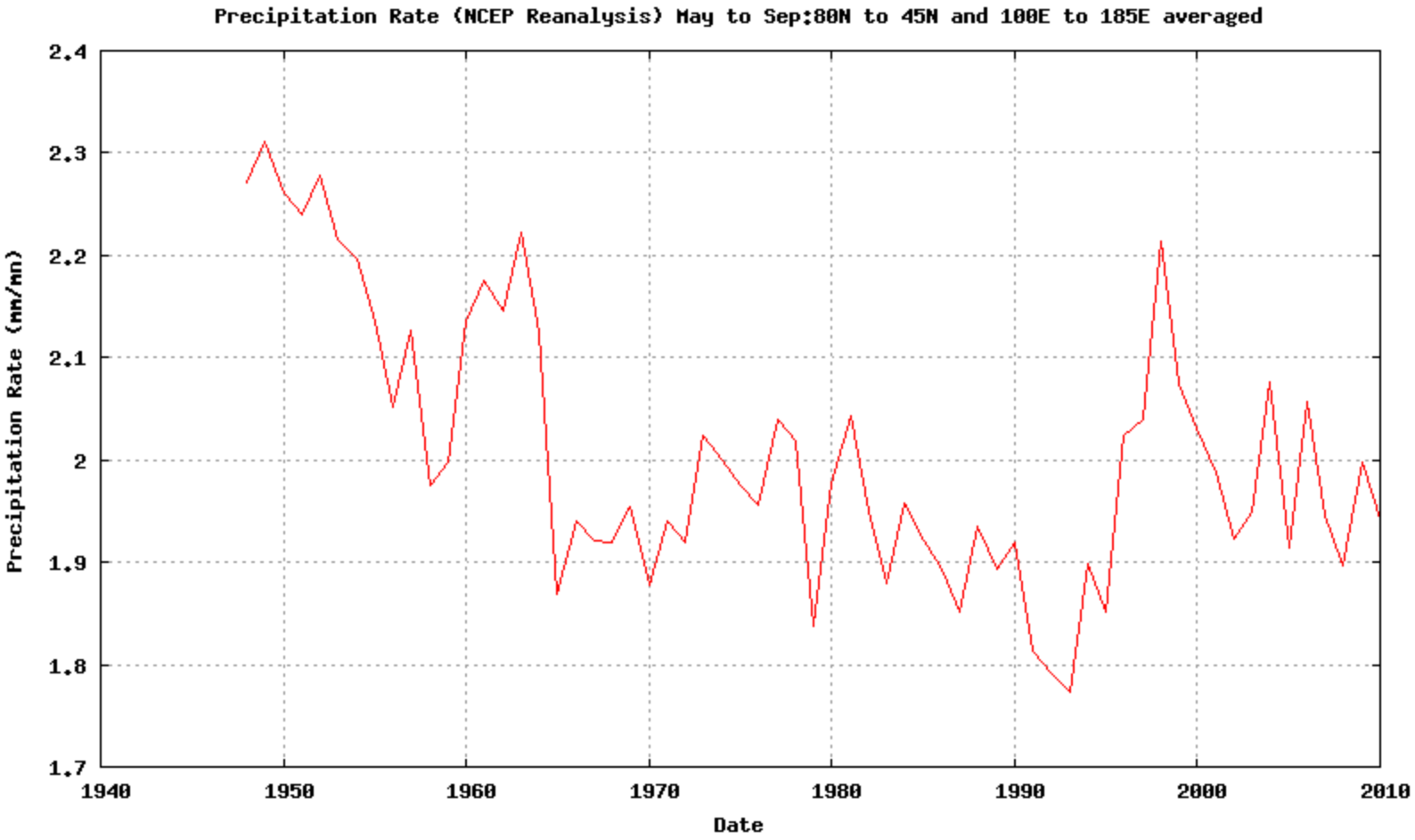
Source of data

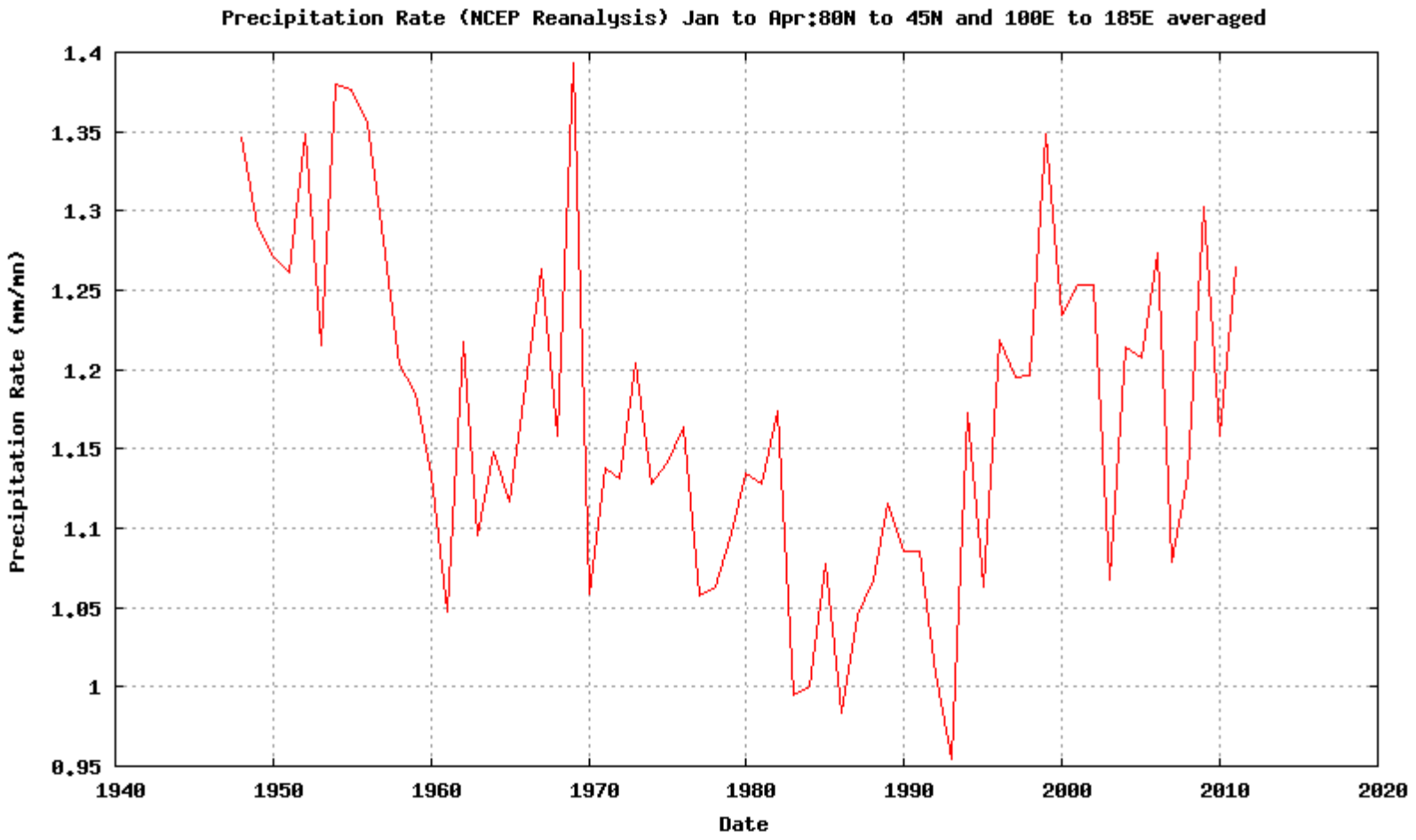
- Satellite SSM/I http://disc.sci.gsfc.nasa.gov/precipitation/
- Gauge station GHCN v.2 database

Precipitation time series averaged over Russian Siberia

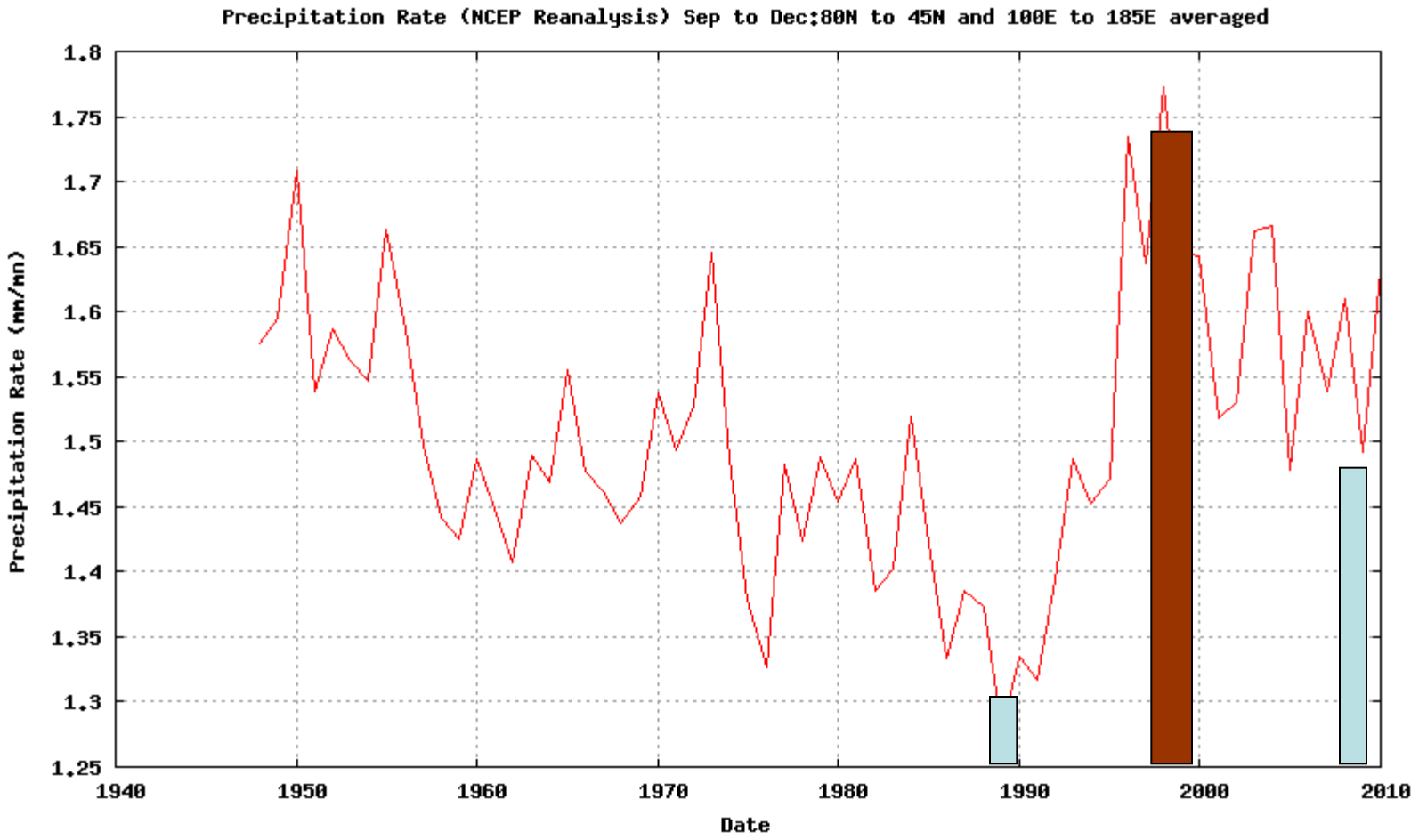
Precipitation rate for May-September: 1948-2010



Precipitation rate for January-April: 1948-2010

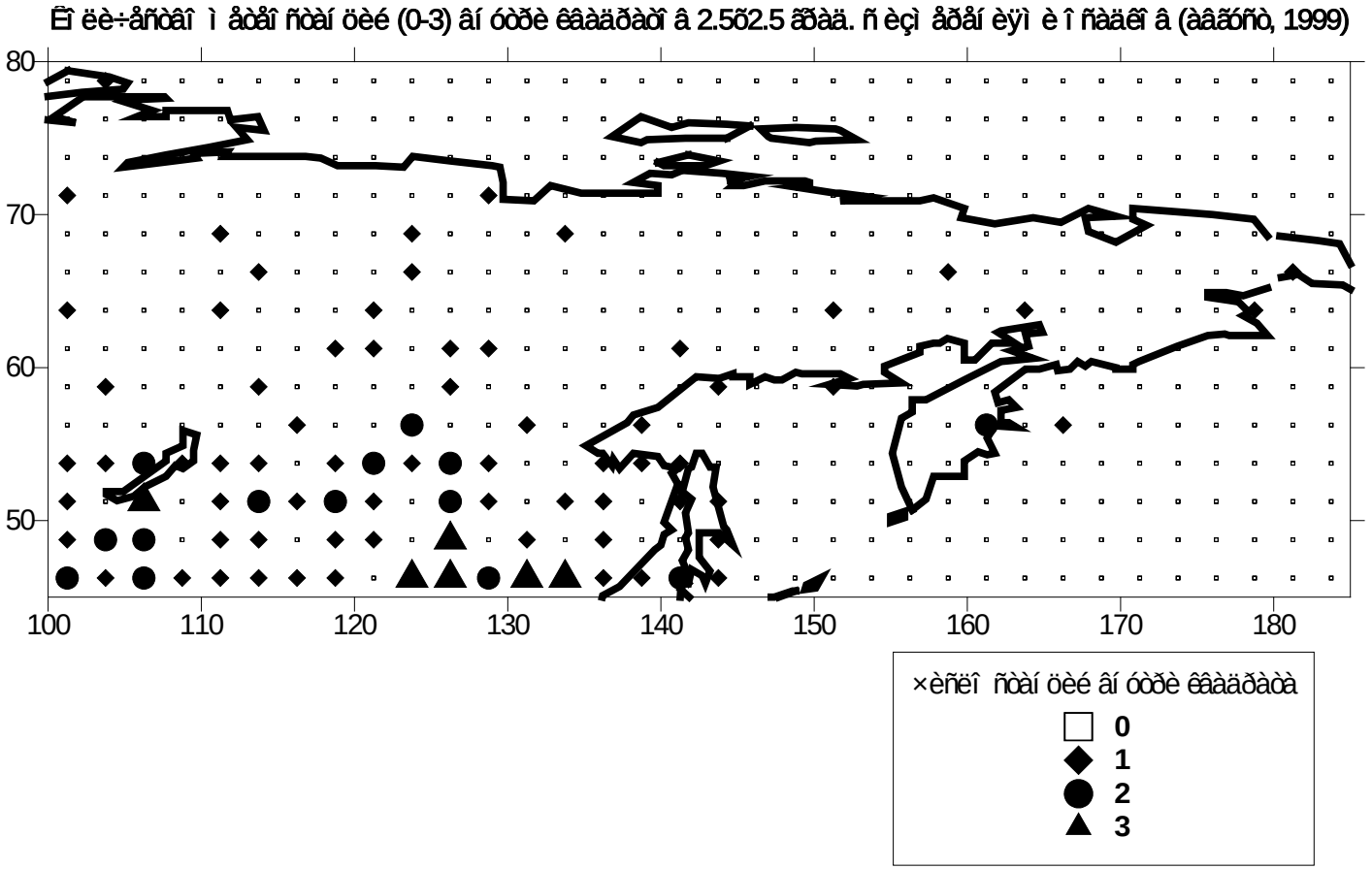


Precipitation rate for September-December: 1948-2010

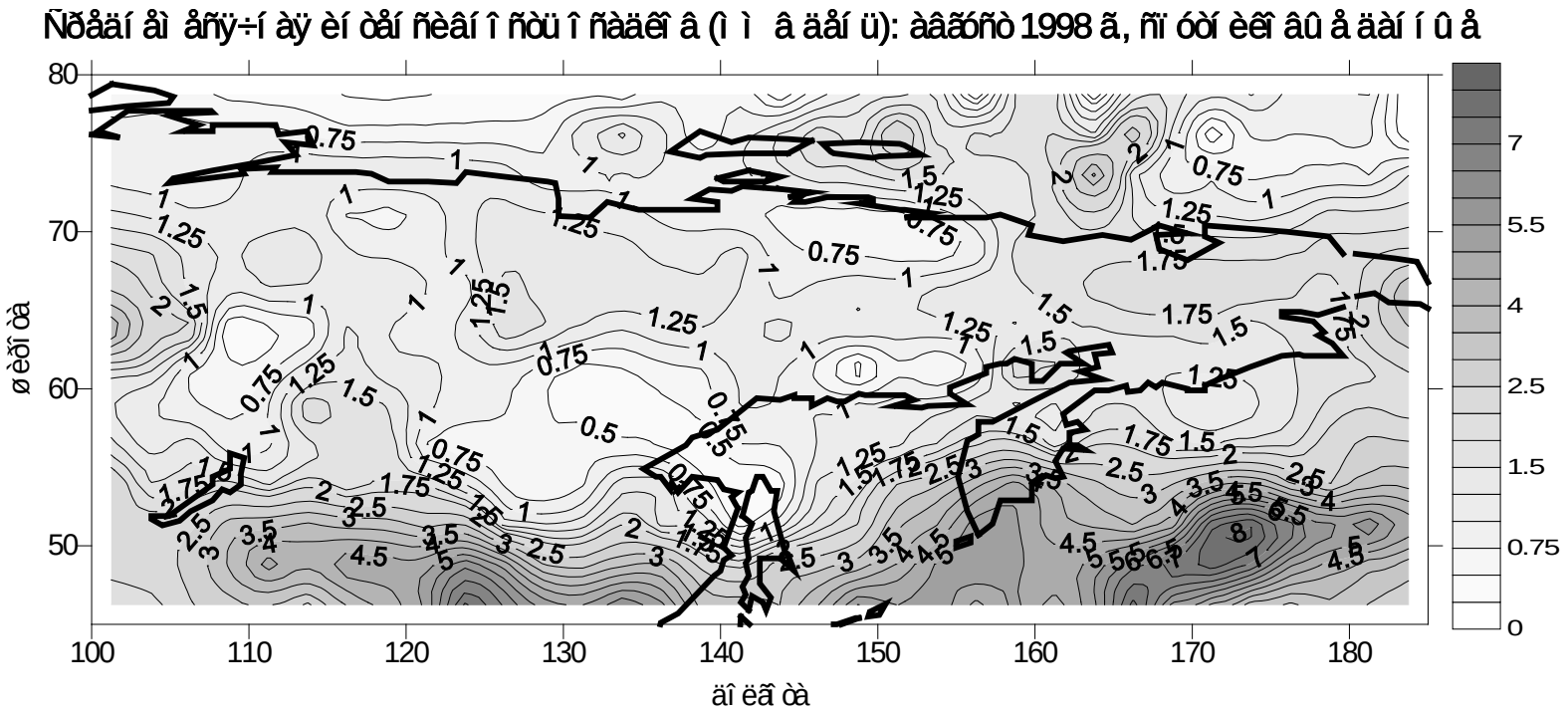


Comparison of precipitation monthly fields derived from gauge station network data and SSM/I remote sensing estimates

Siberia gauge net station distribution for grids of 2.5 by 2.5 latitude/longitudes degrees

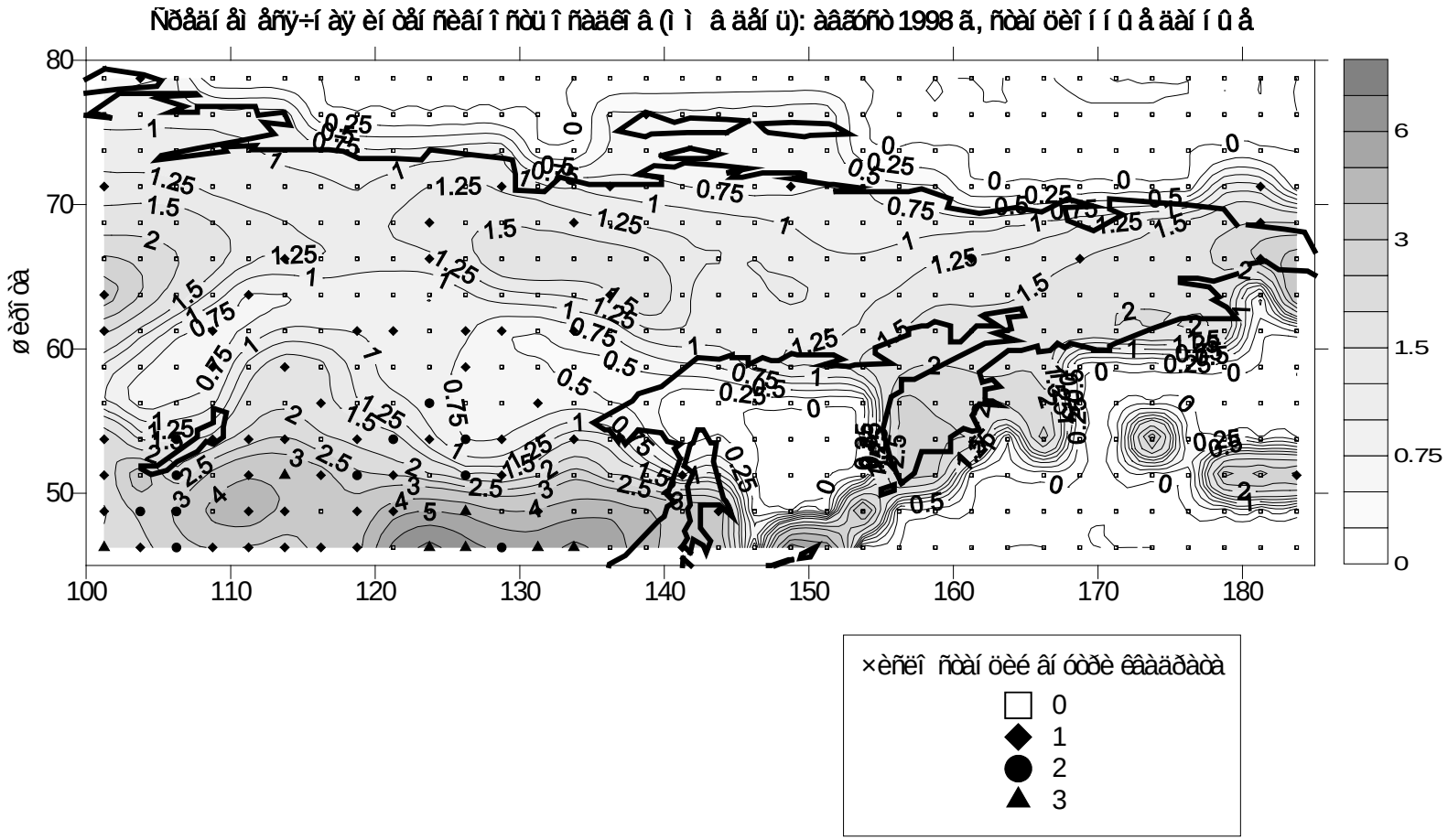


Monthly Precipitation field over Siberia (mm/day) in August 1998, SSM/I data



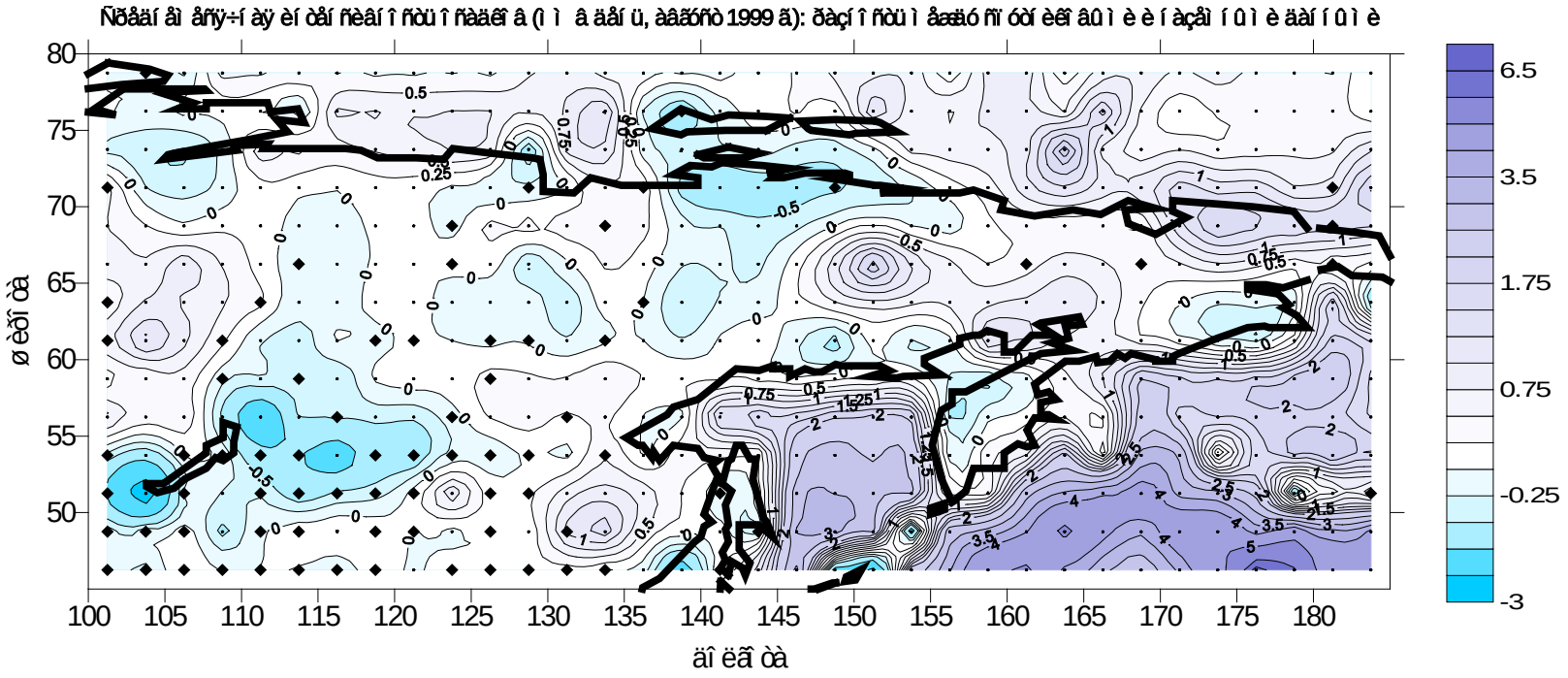
Monthly Precipitation field over Siberia (mm/day) in August 1998,

Station gauge data

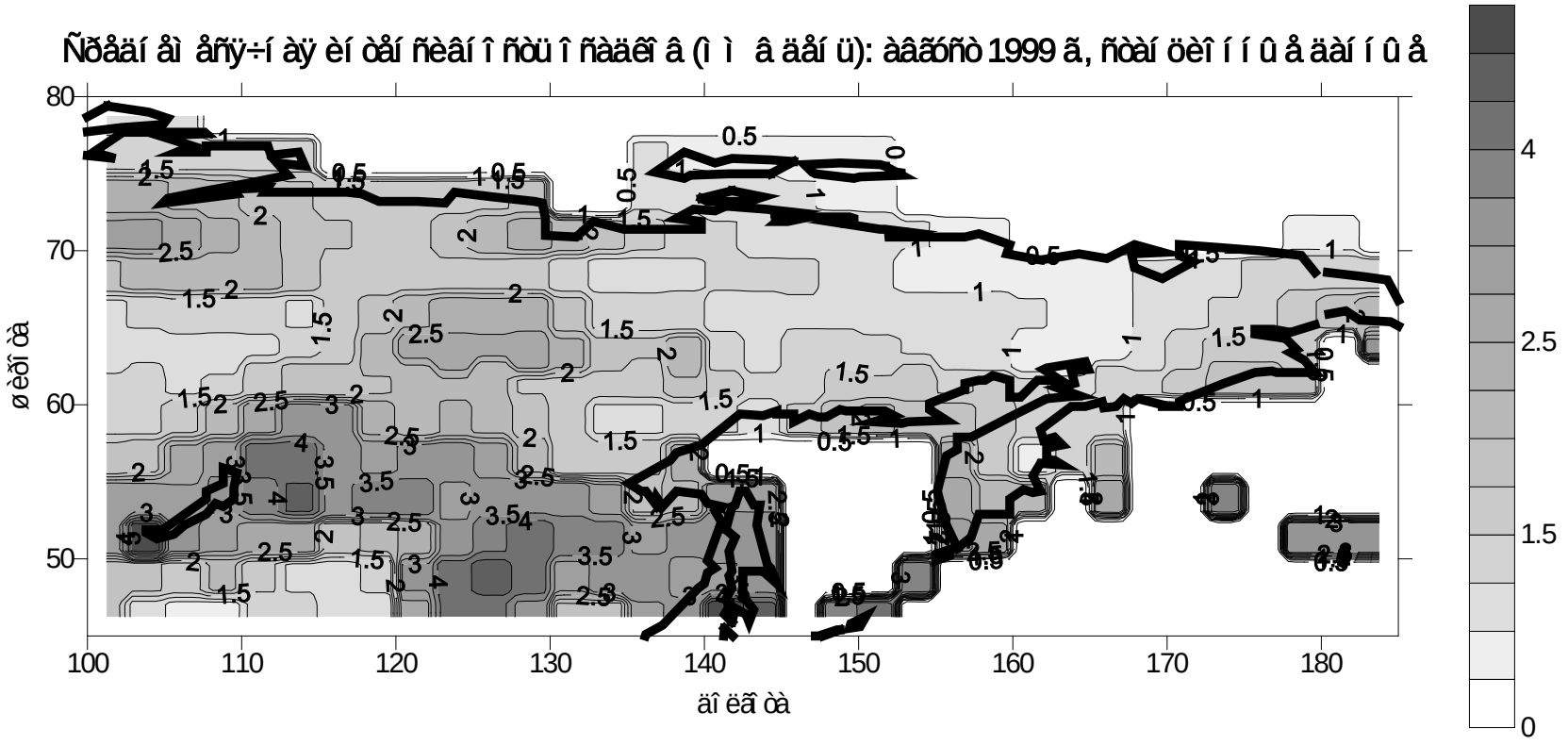


Monthly Precipitation field over Siberia (mm/day) in August 1998,

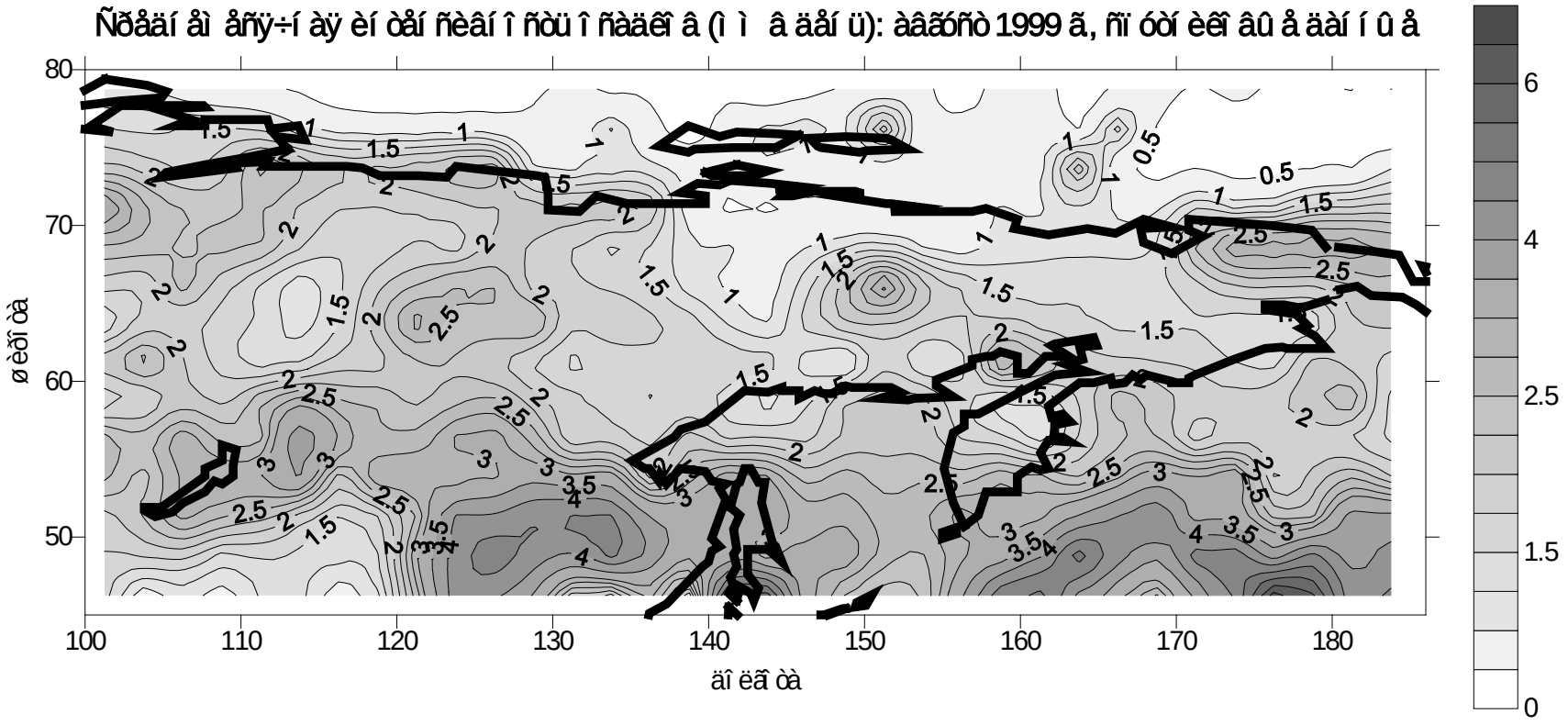
difference between SSM/I and gauge (marked by black points) data



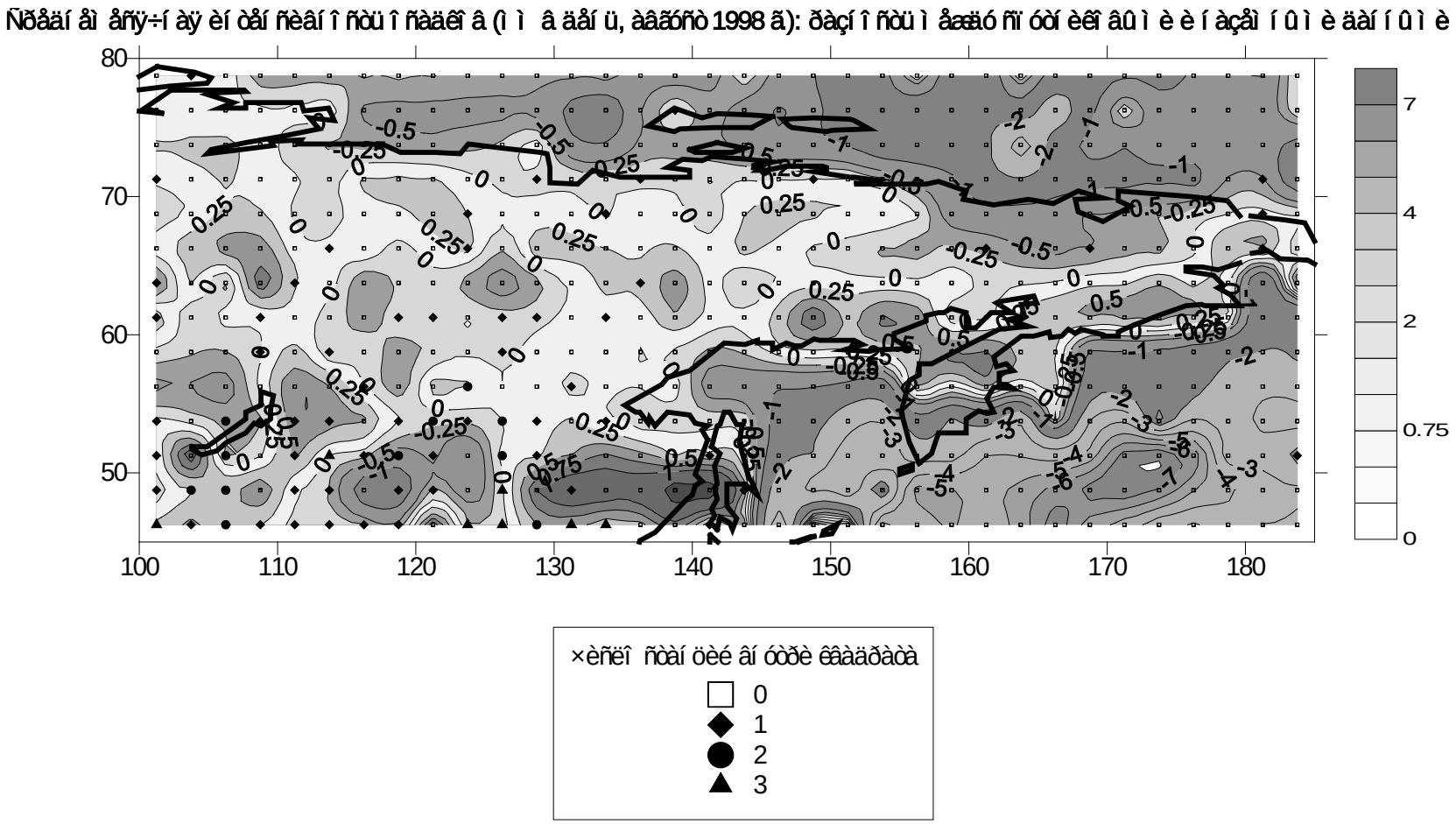
Monthly Precipitation field over Siberia (mm/day) in August 1999,
Station gauge data



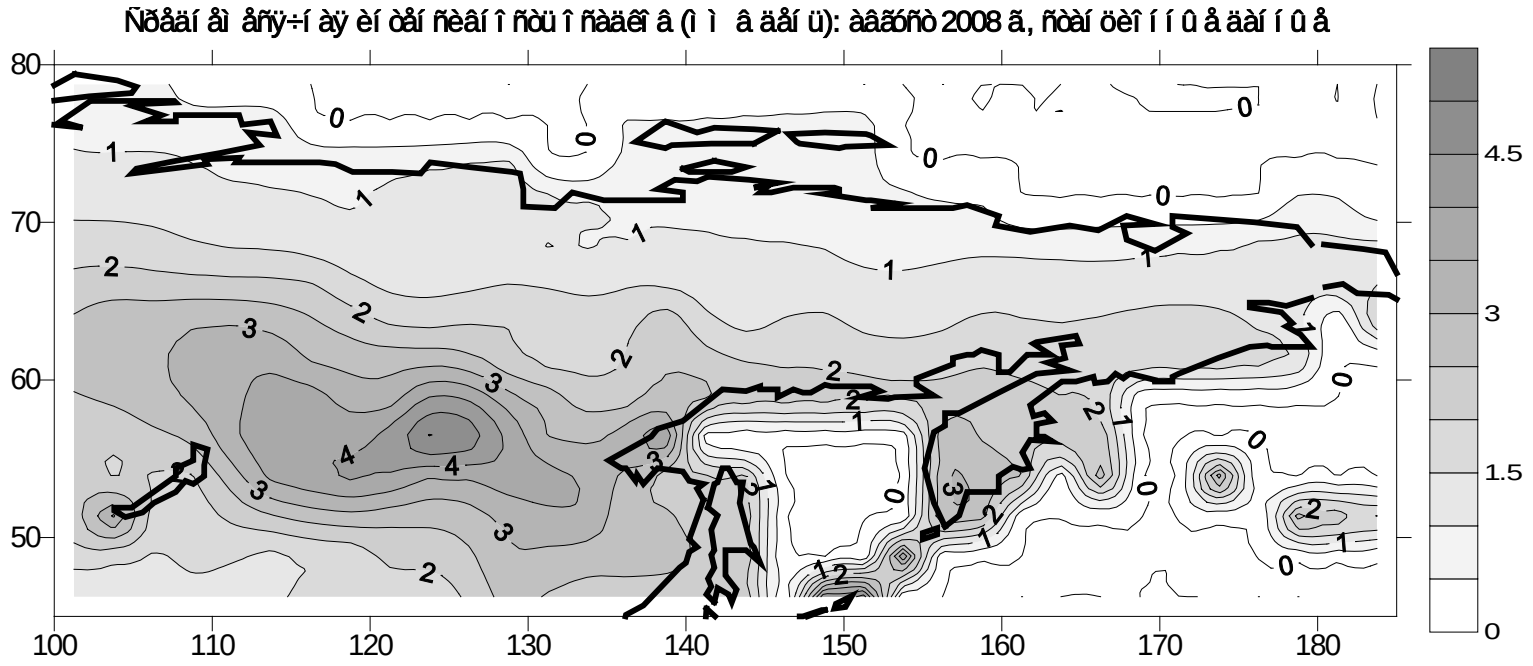
Monthly Precipitation field over Siberia (mm/day) in August 1999, SSMI data



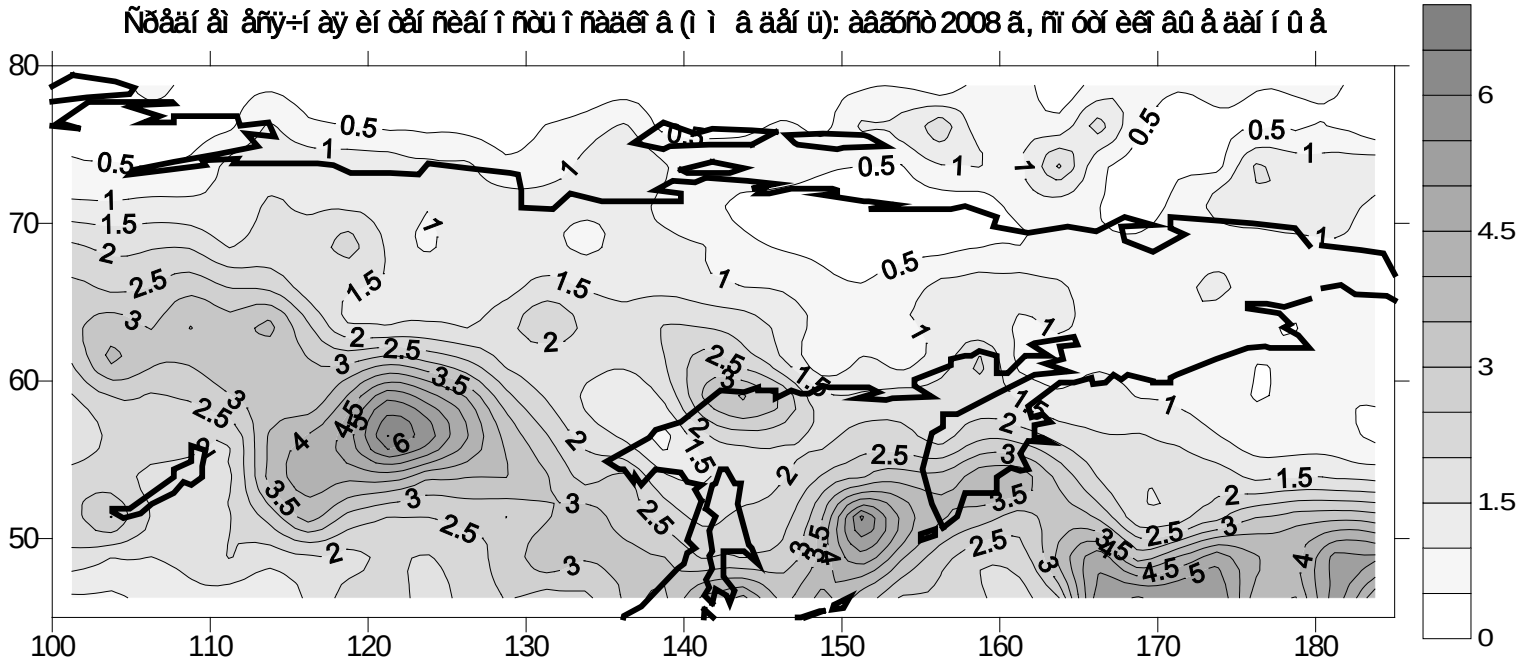
Monthly Precipitation field over Siberia (mm/day) in August 1999, difference between SSM/I and gauge (marked by black points) data



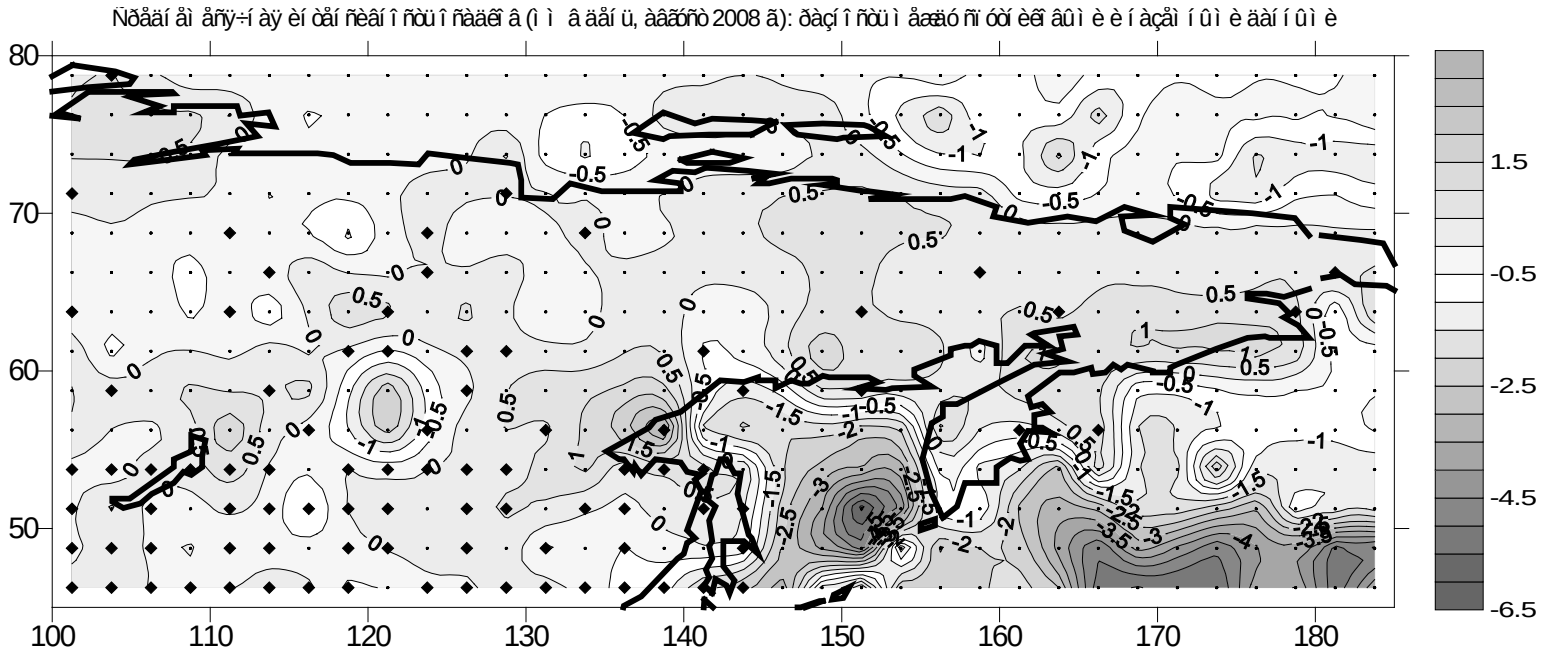
Monthly Precipitation field over Siberia (mm/day) in August 2008, Station gauge data



Monthly Precipitation field over Siberia (mm/day) in August 2008, SSMI data



Monthly Precipitation field over Siberia (mm/day) in August 2008, difference between SSM/I and gauge (marked by black points) data



Conclusions

1. Gauge network in Siberia is extremely non-uniform spatially distributed
2. Satellite SSM/I data provide the only source of information on precipitation field anomalies in North-East part of Siberia and in Arctic Ocean coast domains
3. Comparison of satellite and gauge station data in Southern part of Siberia demonstrates a good agreement of 1.2-1.6 mm/day in mean values