COMPARISON OF THE REGIONAL EARTHQUAKE PARAMETERS IN RUSSIA FOR ESTIMATE MODERNIZING ISC PROCEDURES.

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The GSRAS seismic networks density are very different (fig.1). The regions with highest density of the seismic network: Northern Caucasus, Siberian regions, and Fast-East regions were choosing for comparison.

The seismic stations in these regions are located unevenly and their equipment has different possibility (fig. 2–6). However the selected regional networks provide observations of ones level – Ms≥2.5–3.0.

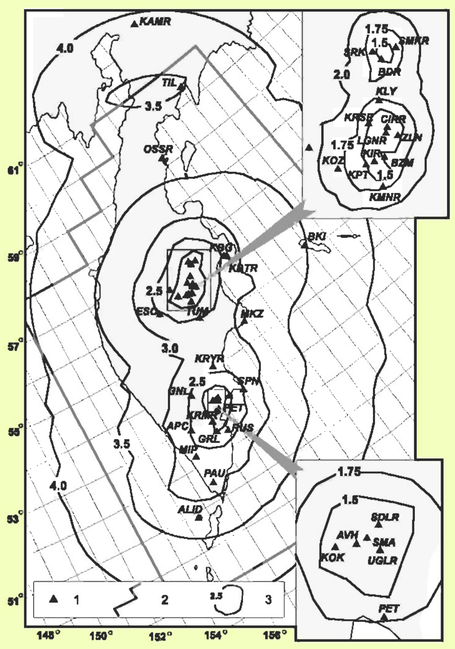


Fig. 2. Possibility of seismic regional network in Kamchatka

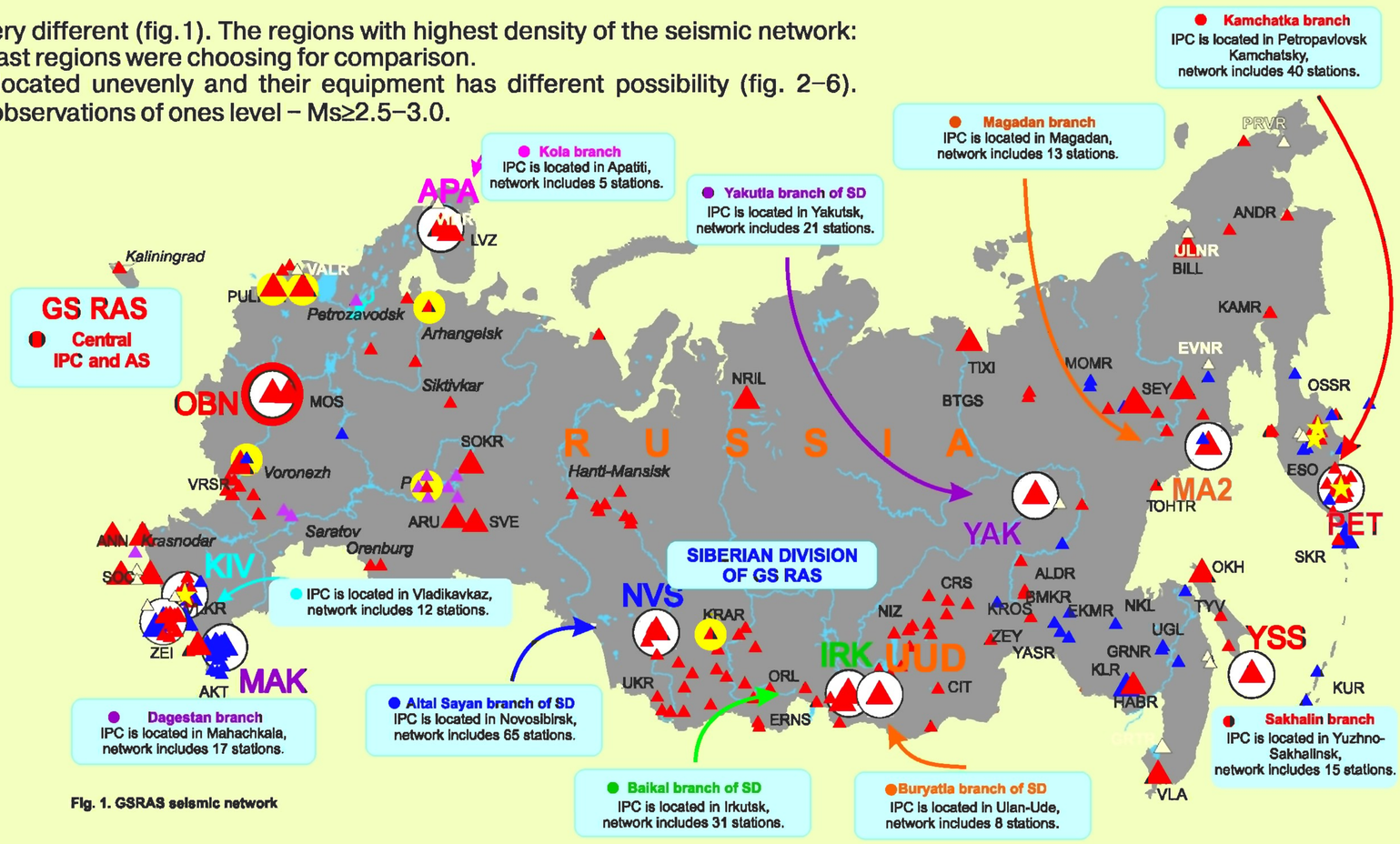


Fig. 1. GSRAS seismic network

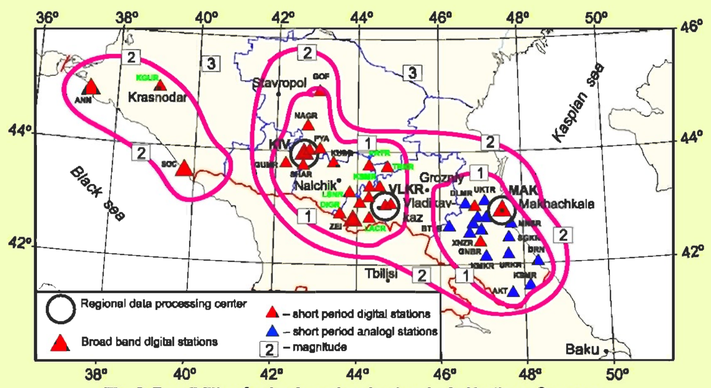


Fig. 3. Possibility of seismic regional networks in Northern Caucasus

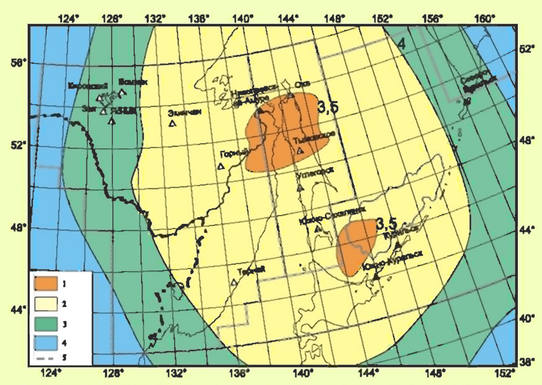


Fig. 4. Possibility of seismic regional networks in Kurily and Sakhalin

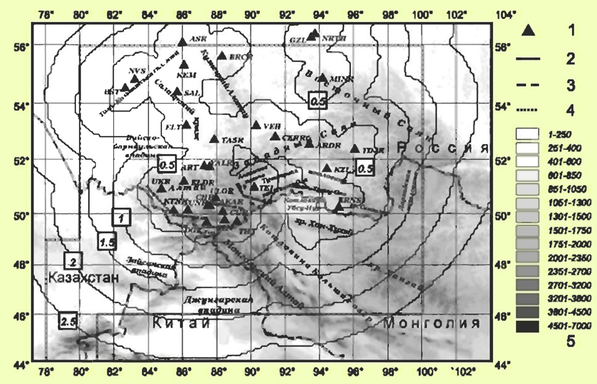


Fig. 5. Possibility of seismic regional networks in Altay-Sayan

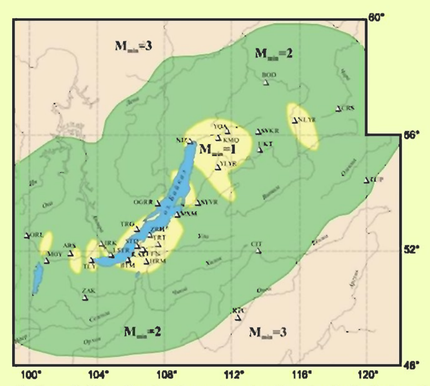


Fig. 6. Possibility of seismic regional networks in Baikal region

Comparison of the ISC bulletin with use TTT JB and TTT AK135 and Russian regional bulletins was conducted to the time period between 2004/01/01 and 2004/10/30 for Siberian, Fast East regions and Northern Caucasus. The data sets have constituted

- 456 EQ for Fast East (fig. 7).
- 160 EQ for Siberian region (fig. 8)
- 57 EQ for Northern Caucasus region (fig. 9)

As a rule the compared events were located inside the regional networks of GS RAS and regional bulletins were based on the data

- of Northern Caucasus network,
- networks of Baikal (BYKL) and Altay-Sayan Department of the GS Siberian Branch Russian Academy of Sciences,
- networks of Kamchatka (KRSR) and Sakhalin Department (SHKL) of the GS RAS.

During the last decade GS RAS have sent regional bulletin of BYKL, KRKR and SHKL agencies which used in ISC for preparing seismic bulletin.

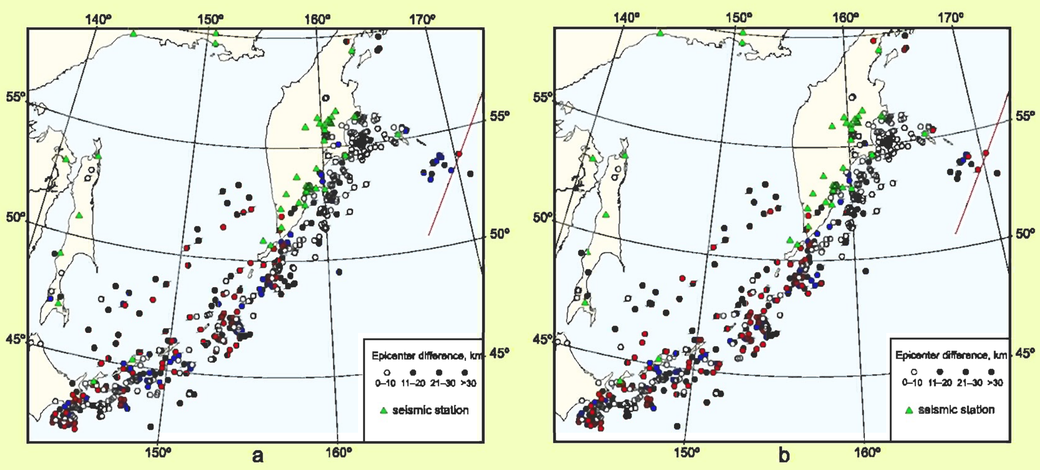


Fig. 7. Map of the Fast East earthquakes epicenters which have occurred from 1 January to 31 October 2004. Epi differences between ISC (TTT AK135) bulletin and GSRAS regional bulletin (a) and between ISC (TTT JB) bulletin and GSRAS regional bulletin (b) are painted

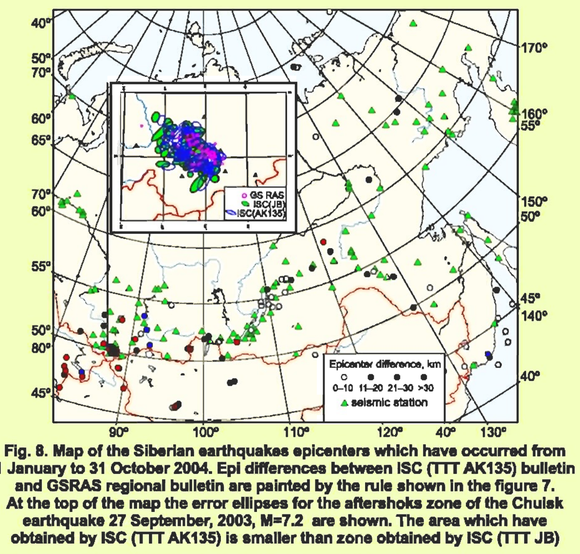


Fig. 8. Map of the Siberian earthquakes epicenters which have occurred from 1 January to 31 October 2004. Epi differences between ISC (TTT AK135) bulletin and GSRAS regional bulletin are painted by the rule shown in the figure 7. At the top of the map the error ellipses for the aftershoks zone of the Chuisk earthquake 27 September, 2003, M=7.2 are shown. The area which have obtained by ISC (TTT AK135) is smaller than zone obtained by ISC (TTT JB)

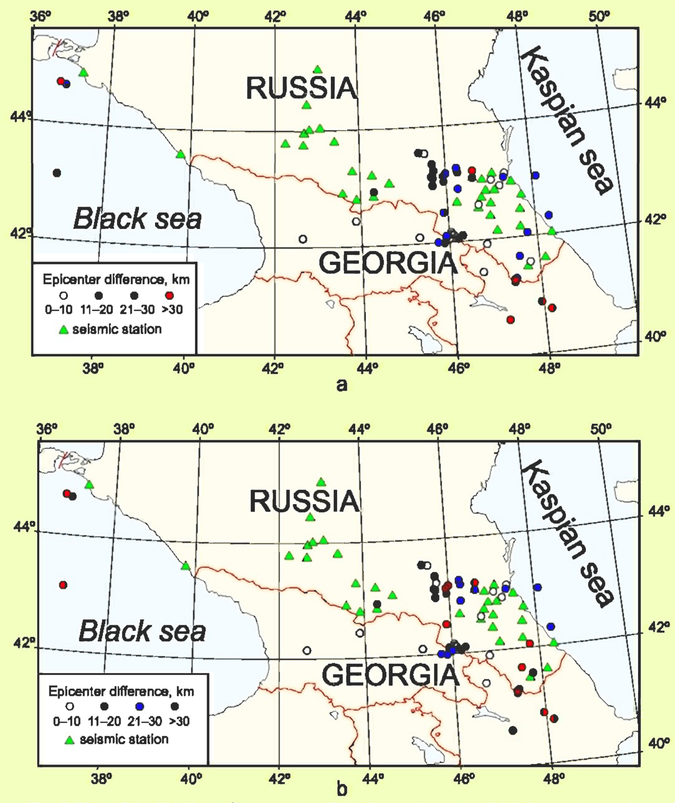
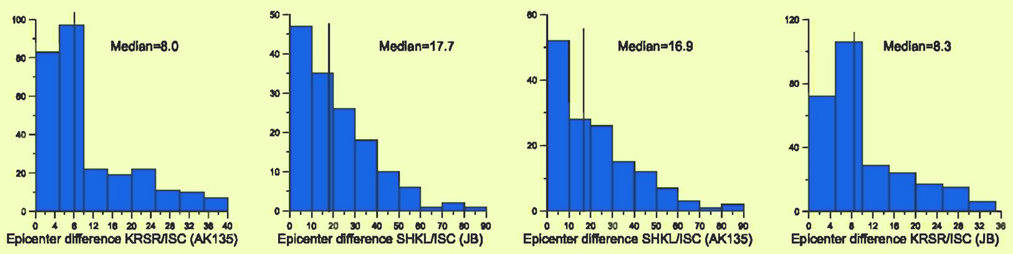


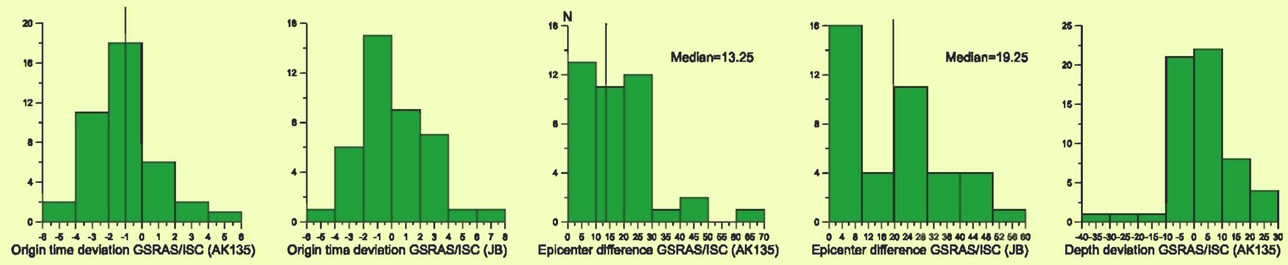
Fig. 9. Map of the Northern Caucasus earthquakes epicenters which have occurred from 1 January to 31 October 2004. Epi differences between ISC (TTT AK135) bulletin and GSRAS regional bulletin (a) and between ISC (TTT JB) bulletin and GSRAS regional bulletin (b) are painted by the rule shown in the fig. 7. Epi differences in fig. 7a less than 7b in some zones

HISTOGRAMS OF THE PARAMETER DEVIATIONS

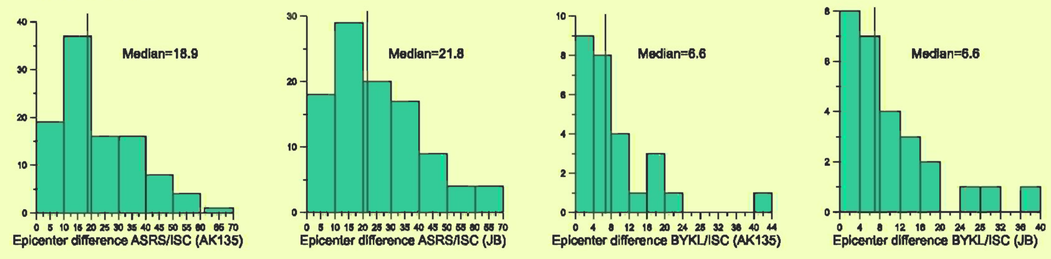
Fast East



Northern Caucasus



Siberian region



The following results are obtained:

Generally, the epicenter differences in ISC bulletin with used TTT AK135 and GS RAS regional bulletins, and ISC bulletin with used TTT JB and GS RAS regional bulletins are similar each other for all analysis regions of RUSSIA.

The obtained deviations more depend from the design of a network used in the location, than from used different Travel Time Tables (AK135 or JB).

Nevertheless, in cases where ISC bulletin have used networks with nearest stations (less 50 km) and small GAP (less 120) – about 65% epicenters have obtained less epicenter differences and time origin from regional bulletins for used TTT AK135 than JB.

GSRAS supports the use TTT AK135 at the location for preparing ISC bulletins.