Disclaimer
The views expressed on this poster are those of the author and do not necessarily reflect the view of the CTBTO

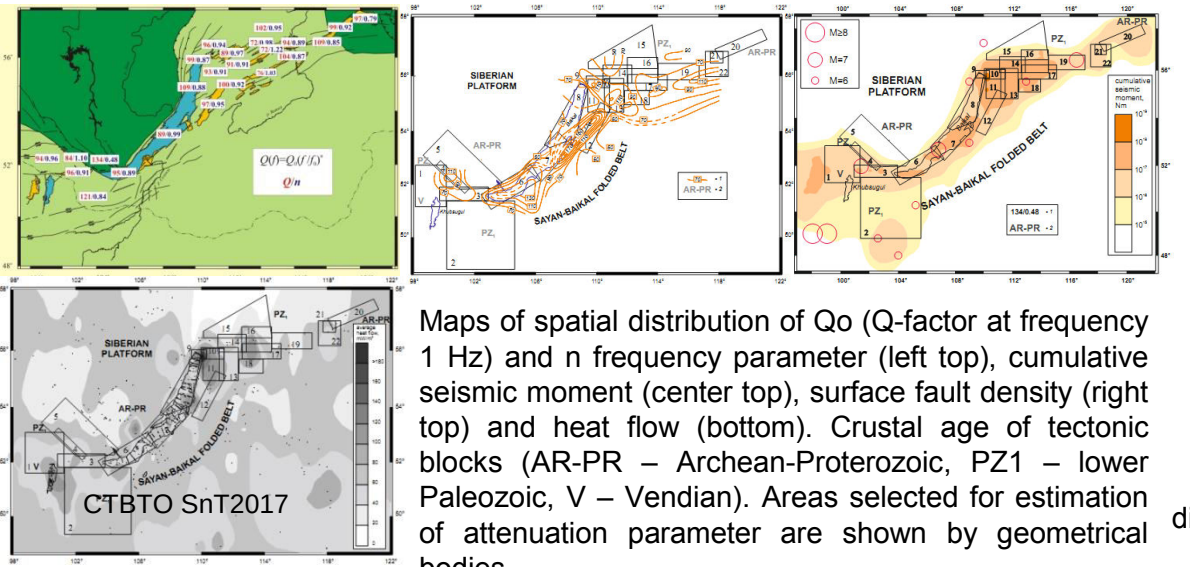
SEISMIC WAVE ATTENUATION IN THE BAIKAL RIFT SYSTEM

Authors: **Anna Dobrynina, Vladimir Sankov, Vladimir Chechelnitsky**

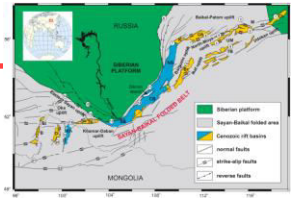
Highlight: Quality factor (***Q***) and its frequency dependence (***n***) were obtained for the Baikal rift using coda waves. Attenuation coefficient and ***n*** decrease with the increase in depth. Sharp changes of ***Q*** and ***n*** are confined to velocity discontinuities.

The lithospheric and asthenospheric mantle is characterized by a layered structure preventing the convection. The resulting multilayered model of the seismic quality factor of the lithosphere and upper mantle of the NE flank together with analogous results for the SW flank may be indicative of passive formation of the rift system.

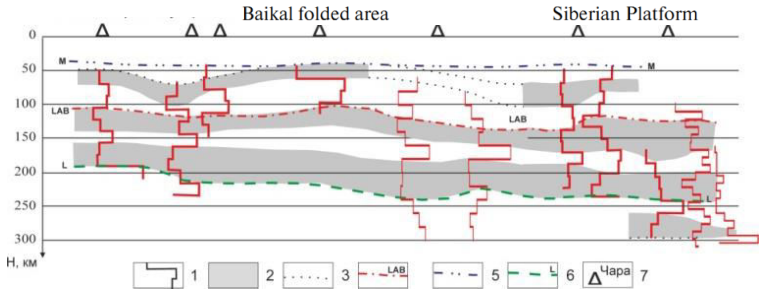
The comparison of lateral variations of seismic wave attenuation and geological and geophysical characteristics of the Baikal rift shows that attenuation is correlated with both seismic activity and heat flow and in a lesser degree with the surface fault density and the age of the crust.



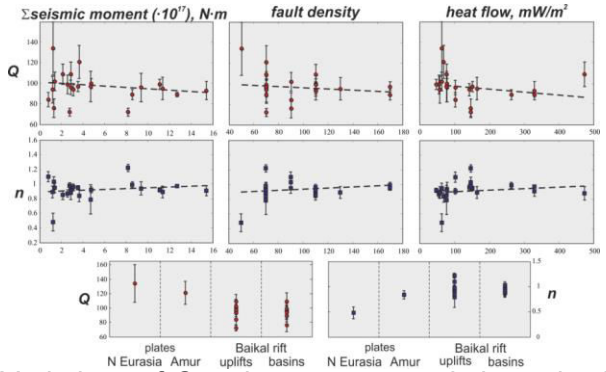
Maps of spatial distribution of Qo (Q-factor at frequency 1 Hz) and n frequency parameter (left top), cumulative seismic moment (center top), surface fault density (right top) and heat flow (bottom). Crustal age of tectonic blocks (AR-PR – Archean-Proterozoic, PZ1 – lower Paleozoic, V – Vendian). Areas selected for estimation of attenuation parameter are shown by geometrical bodies.



Neotectonic scheme of the Baikal rift system and surroundings.



Schematic section of the lithosphere and upper mantle of the BRS northeastern flank based on the Q-value interpolation. *1* Q-curves; *2* areas with a lower Q; *3* assumed boundaries of a lower Q area; *4* lithosphere-asthenosphere boundary; *5* Moho; *6* Lehmann; *7* seismic stations



Variations of Q and *n* versus cumulative seismic moment, surface fault density and heat flow. Bottom: distribution of Q *n* for different tectonic structures: North-Eurasian and Amur lithospheric plates and Baikal rift.