

## Sedimentation pattern in ocean-like Lake Baikal

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Baikal is the deepest (1647 m) and by volume the largest (23'020 km<sup>3</sup>) lake on earth, stretching over an area of 31'500 km<sup>2</sup> with about 300 rivers, supplying annually 65 km<sup>3</sup> of water to the lake. This ocean-like basin developed a multitude of morphological features during its 25 million years old history: deep basins with wide, flat central plains; tectonic ridges; over-steepened slopes; large delta structures; pelagic platforms; shallow, subsidiary basins; etc. During the last decades Lake Baikal's *Sediment Factory* has been in focus of a number of Russian and internationally funded research projects to study sediment formation and distribution of this extraordinary lacustrine basin (BICER, BDP, GEOPASS, DARWIN, CONTINENT, VERTEX and others).

Results of long-term sediment trap experiments show large annual and seasonal dynamics of

particle fluxes in the lake, which is ice-covered every year for 5-6 months. Maximum flux rates are 5500 mgm<sup>-2</sup>d<sup>-1</sup>. Particles settle very efficiently through the water column to lake floor, reaching surprisingly high velocities of up to 74 md<sup>-1</sup>. Deposition of surface sediments in Lake Baikal is currently dominated by three processes: (a) pelagic deposition of diatoms; (b) lateral particle transport by turbidity currents; (c) influx of clastic material from tributaries.

To a lesser extent ice-rafting, wind/wave action and aeolian transport contribute also to depositional processes. A first lithological map of the surface sediments (see figure), which was compiled from sedimentological and seismic results of the last ten years, shows the main depositional areas of the *Sediment Factory* of Lake Baikal.

# Lake Baikal

## distribution of surface sediments

### delta-sediments

1.

Upper Angara River, Selenga River

### basin-sediments

2.

N-basin, Central basin, S-basin

### sand-/silt-sediments

3.

Maleo More

### platform-sediments

4.

Continent Ridge  
 Akademichesky Ridge  
 Buguldeika Ridge  
 Posolskoye High  
 Vidrino Shoulder

### reduction-sediments

5. |||

Zavarotny sub-basin

