Uraveli sequence: Implication for the basin formation during the Middle-Upper Eocene time, Achara-Trialeti, Georgia

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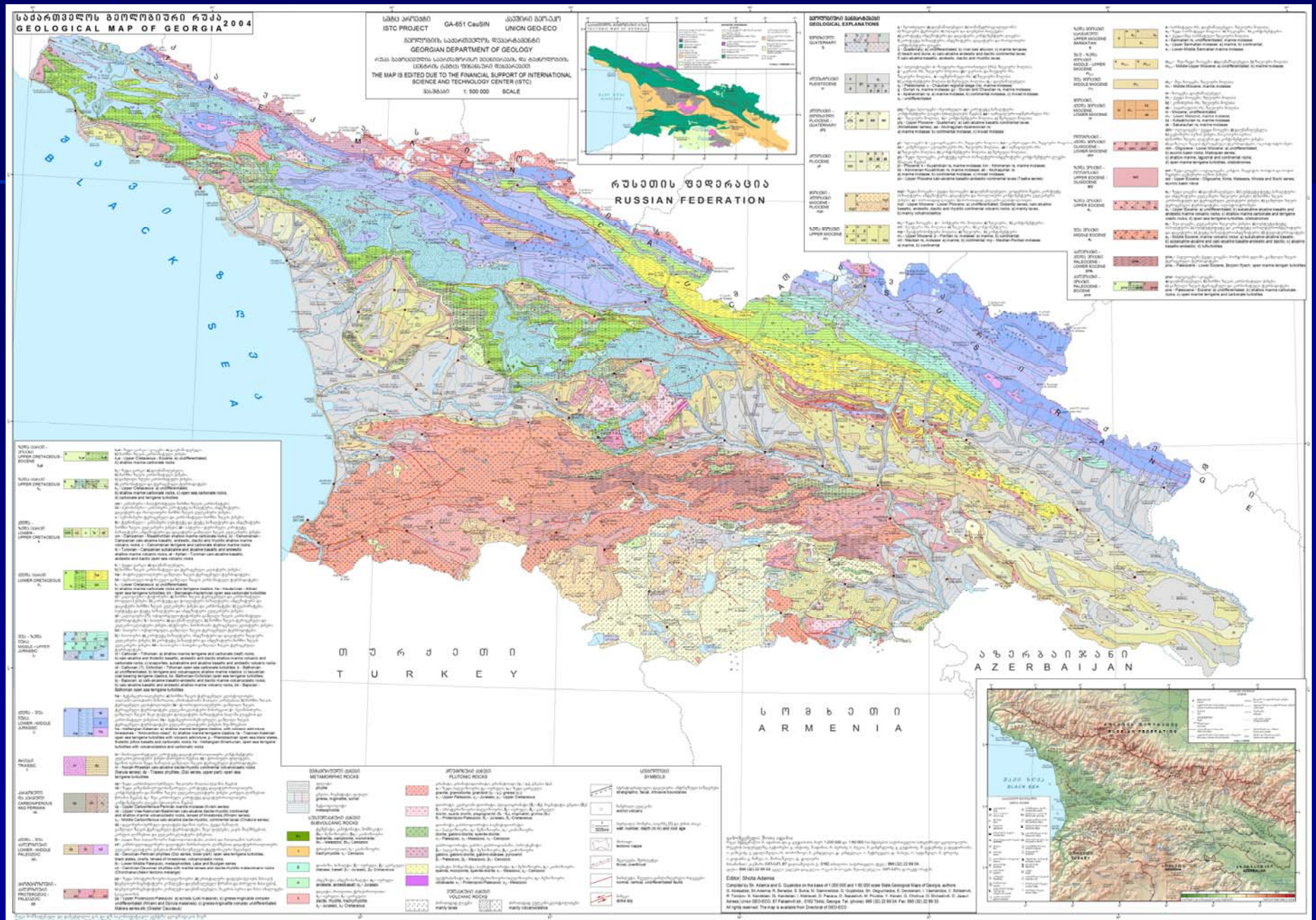
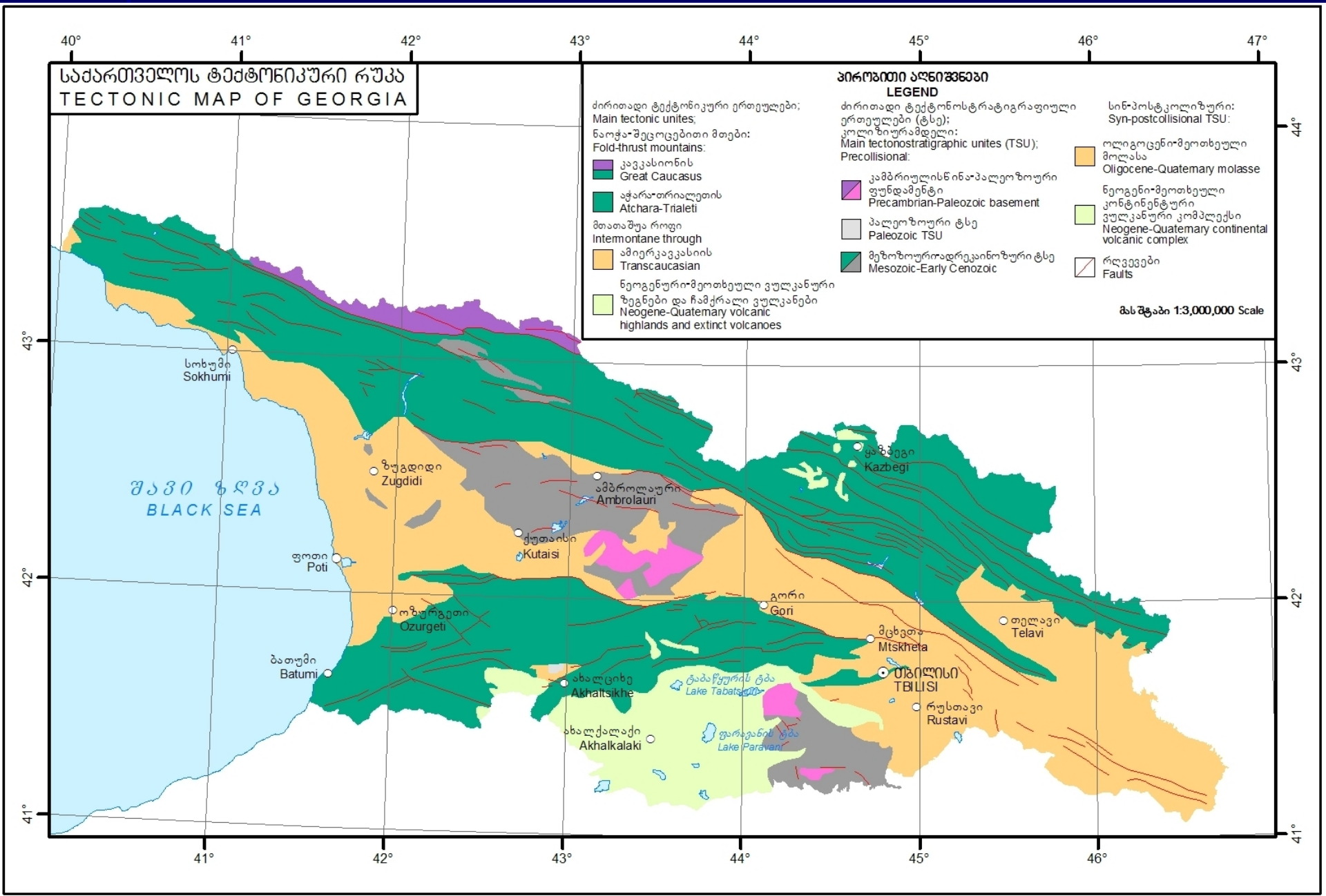
Geological Map of Georgia



The Achara-Trialeti fold and thrust belt is a major tectonic unit located in the eastern part of the Caucasus. Eocene volcano-sedimentary sequences within Achara-Trialeti are folded and thrust-faulted as a result of comressional – contractional tectonic regime during post – Upper Eocene time. From Jurassic to Paleogene the present Achara-Trialeti area was a backarc rift basin, produced by subduction of the Tethys Ocean northwards under Eurasian active margin.

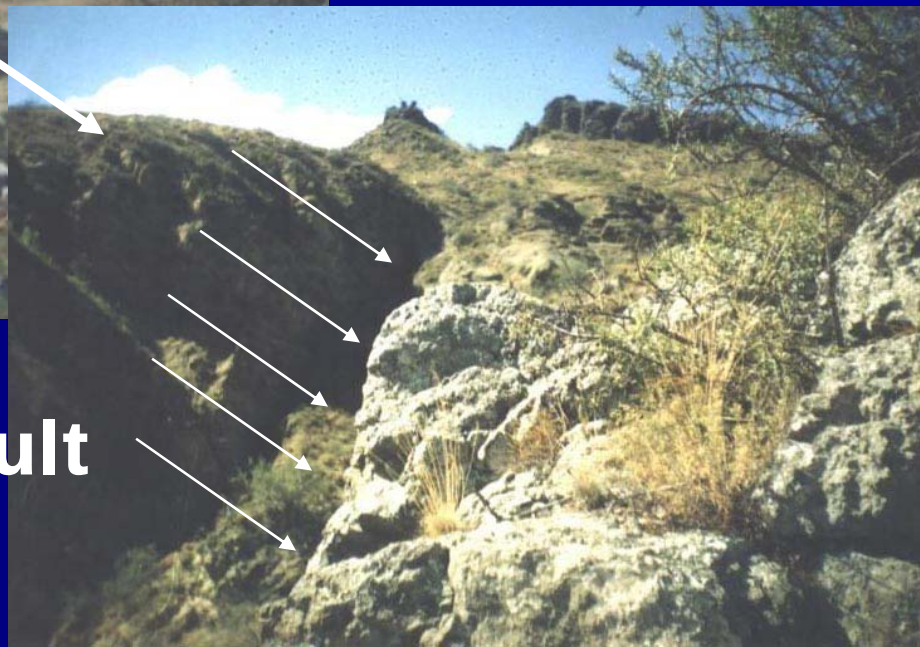
Tectonic Map of Georgia



Sedimentary successions, components and texture of volcanic and volcanoclastic components reflect two-phase subsidence history (fault controlled and thermal) and are divided into syn-rift and transitional megasequences.

The Lower-Middle Eocene sedimentary rocks (thin and thick turbidites, piroclastic flows and volcanoclastic turbidites) filling the basin during extensional tectonic regime accompanied by mostly low K tholeitic and calk-alkaline volcanic activity. The Upper Eocene sedimentary rocks (thin bedded turbidites) filling the basin during transitional regime accompanied by alkali volcanic activity.

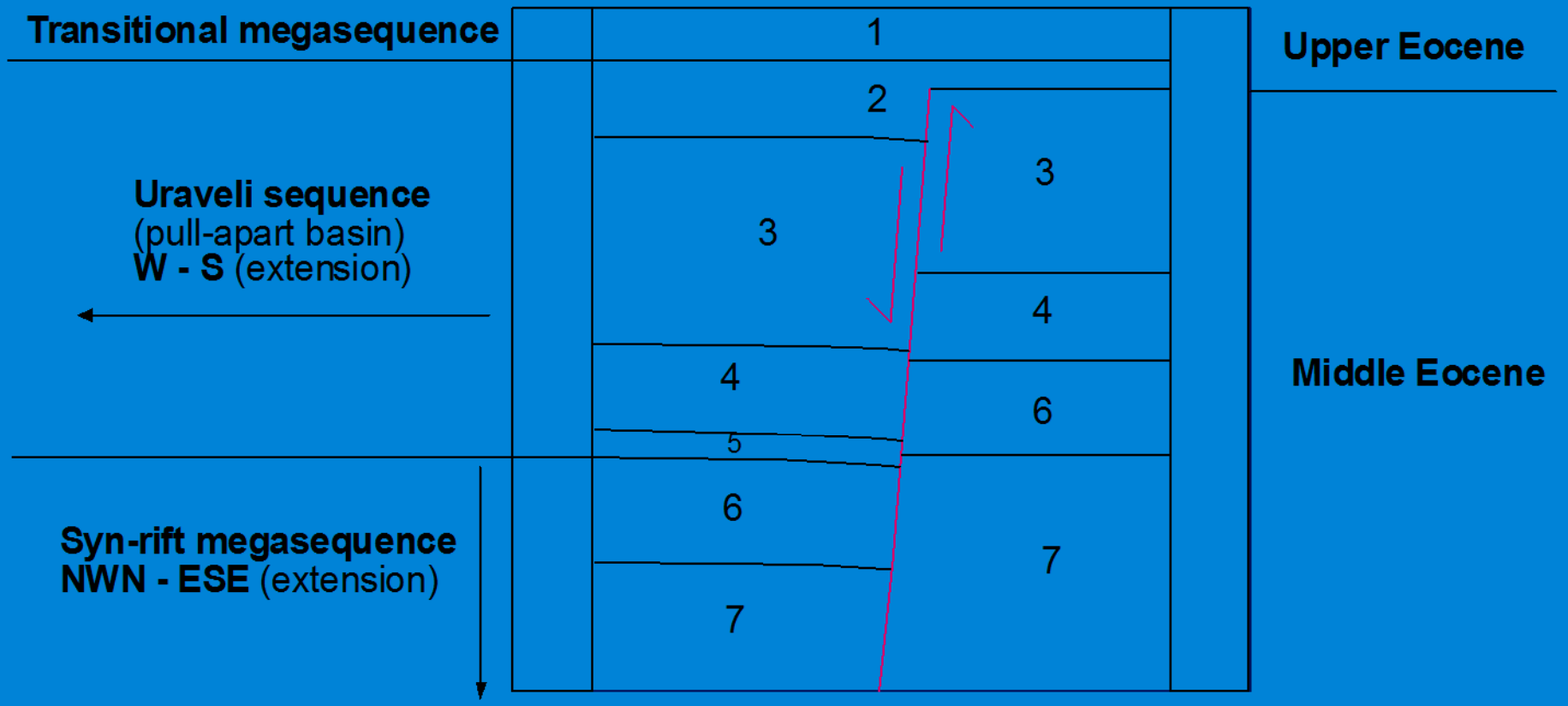
Panorama picture of Uraveli sequences (Upper part of Middle Eocene)



normal fault


WNW
Small scale normal faults
slump structure
1
2
2
3
3
4
4
5
6
1. Lava-breccia, lavas, thin-bedded clays, sandstones.
2. Turbidites, conglomerates, lava-breccia.
3. Thick-bedded turbidites.
4. Thin-bedded turbidites.
5. Thick-bedded turbidites.
6. Pillow lavas.
Middle Eocene pillow lavas

Schematic litho-stratigraphic column



1. Lava-breccia, lavas, thinbedded clays, sandstones.
2. Turbidites, conglomerates, lava-breccia.
3. Thickbedded turbidites.
4. thinbedded turbidites.
5. Thickbedded turbidites.
6. Pillow lavas.
7. Volcanogenic turbidites, lavas, debris flow.

Based on sedimentary, stratighraphy and structural analyses within Akhaltsike basin (r. Uraveli and Mtkvari) in Middle Eocene-Upper Eocene times Uraveli sequence, represented by thin and thick bedded turbidites, separates from each after syn-rift and transitional megasequences.

Formation of this sequence was due to transpressional – extensional tectonic regime. In late Middle Eocene-early Upper Eocene were generating deeping to the north normal faults and related to them half-graben structures, which caused formation of asymmetric shape depocenters.

Such kind of tectono-sedimentation is common to the pullapart type basins.

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