

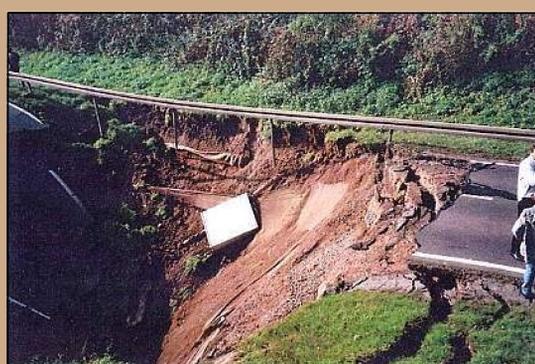
# Reactivation of a geogrid-bridged sinkhole: A real life solution approval

Dimiter Alexiew, HUESKER, Germany



## Reactivation of the sinkhole on the 17<sup>th</sup> Oct. 2001 about 18:00 h

- 18:00** Noises were registered in the neighbourhood. Cut slopes on both sides start to slide. First contour of the sinkhole can be identified on the road surface.
- 18:30** Clear deflection of the road surface. Torsion starts step by step. Traffic continues at up to 100 km/h; automatic warning signs are still not activated
- 18:45** Deflection increases. Still no activation of the warning signs. Eyewitnesses from the neighbourhood try to stop the traffic without any success. Traffic continues.
- 19:00** People from the neighbourhood and meantime the police eventually stop the traffic. Sinkhole funnel on a large area beneath the road. Deflection increases, longitudinal and cross inclinations also increase. A part of a slope on one side slides finally beside the road and disappears in the funnel. Warning system is still not activated.
- 19:30** Deflection and inclinations continue to increase; about that time the system collapses. The geogrids (they are not pulled out!) fail. They fail more or less at the mid-span of the funnel.



In 1993 a critical huge sinkhole funnel in a karstic area on the German Federal Highway B180 near Eisleben was bridged and secured for the first time in Germany using extremely high-strength low-strain geogrids. The philosophy, design and construction of the high-strength geogrid solution are shortly described. In October 2001 the sinkhole funnel re-opened. The geogrid system held the road for over one hour (although the owner asked in 1993 for 15 minutes) over a funnel of more than 15 meters, which was enough to stop the traffic. The solution proved to be successful in preventing disasters of this type. It is the first case known when a geogrid sinkhole-bridging was tested by real life.

