

The new PARIO™ device for determining continuous particle-size distributions of soils and sediments.

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The particle-size distribution (PSD) is a key property of soils. The reference method for determining the PSD is based on gravitational sedimentation of particles in an initially homogeneous suspension. Traditional methods measure manually (i) the uplift of a floating body in the suspension at different times (Hydrometer method) or (ii) the mass of solids in extracted suspension aliquots at predefined sampling depths and times (Pipette method). Both methods lead to a disturbance of the sedimentation process and provide only discrete data of the PSD.

Durner et al. (2017) recently developed a new automated method to determine particle-size distributions of soils and sediments from gravitational sedimentation (Durner, W., S.C. Iden, and G. von Unold: The integral suspension pressure method (ISP) for precise particle-size analysis by gravitational sedimentation, *Water Resources Research*, doi:10.1002/2016WR019830, 2017). The so-called integral suspension method (ISP) method estimates continuous PSD's from sedimentation experiments by recording the temporal evolution of the suspension pressure at a certain measurement depth in a sedimentation cylinder. It requires no manual interaction after start and thus no specialized training of the lab personnel and avoids any disturbance of the sedimentation process.

The required technology to perform these experiments was developed by the UMS company, Munich and is now available as an instrument called PARIO, traded by the METER Group. In this poster, the basic functioning of PARIO is shown and key components and parameters of the technology are explained.