

Some key experiments for the validation of local elastic effects on Earth Tide tilts and strains

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The determination of body tide Love and Shida numbers at tidal periods was the main goal of tidal research in the 1960s. However, the dispersion of observational results of tidal tilts and strains forced researchers to identify a local source of systematic error. In the early 1970s the physics of these disturbances became understood as very local distortions of the expected large-scale deformation fields and the terms cavity, topographic and geological effects were coined. At the Black Forest Observatory (SWGermany) a series of key experiments were carried out with different tilt-and strainmeters to verify these effects. Several of the most important of these convincing tests will be revisited.