

Stress/strain state colouring method for IMS data imaging

The stress/strain tensor fields of the Earth's interior and surface are hard to present legibly and with sufficient resolution in form of a classical map. Our imaging method is based on coding of three independent stress/strain tensor shape descriptors into the three colour channels (red, green, blue) of an RGB colour. The choice of the descriptors depends on the physical relevance to the purpose of imaging. Each pixel/voxel of the resulting colour map shall carry an intuitively readable colour information about the stress/strain state at the point. The method performed successfully in the studies listed in References. The scope of interests of CTBTO offers a wide range of future applications of our method, e.g. fault rupture and seismic wave propagation, underground cavity stability analysis, ground subsidence imaging. The imaging method could be adapted to any tensors of rank 2 in 3D space. References: Bednárík, M., Kohút, I. 2012. Three-dimensional colour functions for stress state visualisation. *Computers and Geosciences*, 48, 117–125, doi: 10.1016/j.cageo.2012.05.010; Bednárík, M., Papčo, J., Pohánka, V., Bezák, V., Kohút, I., Brimich, L. 2016. Surface strain rate colour map of the Tatra Mountains region (Slovakia) based on GNSS data. *Geologica Carpathica*, 67, 509 – 524, doi: 10.1515/geoca-2016-0032

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