Motivation:
- earthquake mechanism retrieval affected by seismic noise, structural model applied, distribution of seismic stations around the focus
- unknown 3-D model of medium is often substituted by simplified 1-D model
  - importance to test possible distortion (orientation, DC/non-DC contents)

Inversion method:
- inversion of the P and S waves peak amplitudes of the ground displacement
- full moment tensor expression of the mechanism, i.e. $M_1, M_2, M_3, M_4, M_5, M_6$
- iteror inverse problem
- solution by the Singular Value Decomposition method
- decomposition of complete moment tensor into 1D, DC and CLVD parts

Test with synthetic data:
- synthetic data computed for 3-D model
- random noise up to 10% and 20% was added to the input data
- results of synthetic tests:
  - in cases (even for 1-D model, 20% noise and inversion of vertical component of P wave) almost OK
  - 1-D structural model
    - the decomposition is distorted unless both P & S waves are inverted
    - the effect of incorrect velocity model bigger than the effect of noise
  - 3-D structural model
    - noise free - the effect of configuration
    - 10% noise - distortion only for vertical P wave
    - 20% noise - distortion only for vertical P wave and P wave

Seismic zone Dobrá Voda:
- at mountain region of Malé Karpaty
- event Dobrá Voda (1906) reached macroseismic intensity 1 (8°)
- events Jiří (1880), Jablonica (1904) and Dobrá Voda (1930) with intensity 1-2°
- chronicles document earthquakes in the vicinity of Tvrma near to Malé Karpaty:
  - earthquakes in 1515 and 1516 with intensity 6-7°
  - the first earthquake recorded by seismographs, $h_0 = 5.7, I = 8°$
  - ground cracks: 80-350cm deep, 35m long
  - variations of groundwater level, discovery of new water sources

DC and non-DC components of moment tensors using 1-D velocity model:

Conclusions:
- orientation of double-couple part of mechanism estimated properly even from noisy data and with a simple structural model
- availability of complete reading of P and S waves in a high quality even for structural models composed of second velocity derivatives
- increasing the number of seismic stations: distortion of non-double-couple parts is decreasing even if coverage of focal sphere remains sparse

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