

Spatio-temporal threshold selection for induced seismicity

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Motivation:

- Production of oil/gas can cause earthquakes
- Largest 3.6 M_L but shallow
- Substantial damage

Challenge:

- Partial censoring due to development of geophone network
- Network too sparse/insensitive to detect low magnitude events

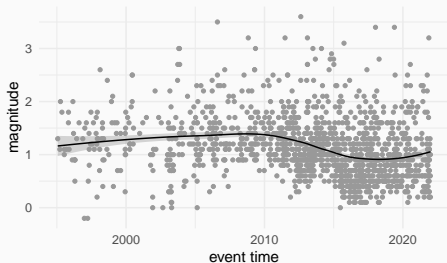


Figure: Earthquake catalogue, Groningen gas field

General results:

- Constant threshold selection method
- Directly tackles bias/variance trade-off
- Easily adjusted for a wide range of models

Induced Seismicity:

- Incorporate spatial variation into threshold
- Physical basis for spatio-temporal threshold

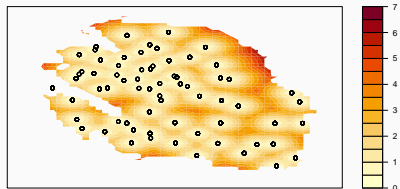
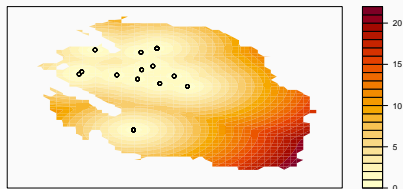


Figure: Geophone network, 2013-2015