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## Investigation of Artificial Water Reservoir Triggered Earthquake at Koyna, India

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Globally there are over 120 sites where artificial water reservoir triggered earthquakes are known to have occurred. Koyna, near the west coast of India is the most prominent site where triggered earthquakes are occurring since impoundment of the Koyna Dam in 1962. These include the M6.3 December 10, 1967 earthquake, 22  $M \geq 5.0$ , and thousands of smaller earthquakes. The entire earthquake activity is limited to an area of about 30 km x 20 km, with most focal depths being within 6 km. There is no other earthquakes source within 50 km of the Koyna Dam. An International Continental Scientific Drilling Program (ICDP) Workshop held in March 2011 found Koyna to be the most suitable site to investigate reservoir - triggered seismicity (RTS) through deep drilling. Studies carried out in the preparatory phase since 2011 include airborne magnetic and gravity-gradient surveys, MT surveys, drilling of 9 boreholes going to depths of  $\sim 1500$  m and logging, heat flow measurements, seismological investigations including the deployment of six borehole seismometers, and Light Detection And Ranging (LiDAR). Significant results include absence of sediments below the basalt cover, the thickness of the basalt column and its relation with the surface elevation, and almost flat topography of the basement. The proposal submitted to ICDP for technical help in drilling two pilot boreholes has been recently approved. The future plan of work includes:

- Drilling of two 3 km deep pilot boreholes during 2015/2016.
- Concurrently planning of deep borehole(s), firming the specifications by the end of 2015, and setting up of the deep borehole observatory during 2016/ 2017.
- Plan for an international meeting and visit to Koyna in 2017.

