

## Focal mechanism of earthquake swarms in Gassan and Ooisawa, Yamagata Prefecture

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Seismic activity near Gassan Mountain was activated 6 days after the 2011 off the Pacific coast of Tohoku Earthquake. In this area, the activity had been low before the Tohoku earthquake. About 15km south of this area, earthquake swarm activity has repeated in Ooisawa area. Recent activities occurred in 2003 and 2006. Triggered activity was not occurred there. We determined source mechanisms of earthquakes magnitude larger than 2.0 of Gassan and Ooisawa activities using P-wave first motion to investigate a difference between two regions. The numbers of source mechanisms determined were 33, 14 and 12 for Gassan, 2003 Ooisawa and 2006 ooisawa activities, respectively. In Gassan, 7 of 33 were strike slip faults, 20 reverse faults with strike slip component, 2 reverse faults and 4 normal faults with strike slip component. Okada et al.(2011) calculated Coulomb stress change on the fault plane of the strike slip event on Apr 4, and obtained a positive change of 0.29MPa. Since the mechanism solutions determined in this study contained strike slip component similar to that used by Okada et al.(2011) , Coulomb stress change may be the cause of the Gassan activity. Considering 6days delay and the low velocity lower crust beneath Gassan into account, an increase of pore fluid pressure is supposed to be another cause of triggering. For Ooisawa swarm, we determined 26 mechanism solutions. All of them were reverse slip faults with E-W or NWN-SES P-axis. As reasons why activities were not triggered in Ooisawa, we suppose that reverse faults, on which a slip was inhibited by the Tohoku earthquake, are predominant, and/or that fluid was not moved into the upper crust there.

### References

- Okada et al.(2011) EPS,63,749-754
- Okada et al.(2015) Geofluids,15, 293?309

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