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Seismic response of 14 December 2006 white-light flare

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Abstract. Some of the more challenging observations to explain in the context of existing flare models are those related to the lower atmosphere and below the surface. Such observations, including changes in photospheric magnetic field and seismic emission, indicate poorly understood connections between energy release in the corona and impacts lower down. Using data from Hinode, TRACE, RHESSI and GONG we study the changes in the photosphere, including in the magnetic field, during the X-class flare of 14 December 2006 and the associated dynamics of the overlying corona to gain an insight into these connections, in particular the origin of the seismic response observed by GONG. The observational results are probed using kinetic and hydrodynamic models applied to the simulations of white light flare and seismic emission.