Application of aeigenscop (analyzer of eigenvectors and signal components) technique aimed at searching for strong earthquake precursors in the soil radon (^{222}Rn) data on Kamchatka (august 2012 – august 2013)

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Abstract. Experience of application of aeigenoscop technique for identifying collective behavior in time series of soil radon data aimed at revealing precursory anomalies before earthquakes with M>5.5 in southern Kamchatka region is described. Aeigenoscop (the analyzer eigenvectors and signal component) is a virtual instrument which allows us to reveal special points of collective behavior in multi-dimensional time series. Analyzing multi-dimensional time series longer than 365 days with the technique, we found distinct special points in the dynamics of soil radon on Petropavlovsk-Kamchatsky geodynamical test site before earthquakes with M=5.6–6.1, occurred at a distance of 140–280 km from the point of registration. A conclusion is made that the technique under consideration can be used for the analysis of time series data of monitoring of soil radon concentration with a view to reveal precursory anomalies of strong earthquakes in southern Kamchatka region.

Keywords: Kamchatka, soil radon, earthquakes, aeigenscop**,** precursor, forecast.