Earth Syst. Dynam. Discuss., 5, C31–C32, 2014
www.earth-syst-dynam-discuss.net/5/C31/2014/

Earth System Dynamics
Discussions

Interactive comment on "Inter-hemispheric asymmetry in the sea-ice response to volcanic forcing simulated by MPI-ESM (COSMOS-Mill)" *by* D. Zanchettin et al.

Anonymous Referee #2

Received and published: 28 March 2014

This is an interesting paper. However, analyses and explanations are somewhat unclear. Thus I recommend minor revisions.

Most fascinating and puzzling result is the responses of sea-ice around Antarctica to the super-volcano. It seems that the atmospheric circulation changes are important factors. However the mechanism of changes in atmospheric circulation is cloudy, and you need explain it more clearly. Although you discussed the atmospheric responses mainly using the Figure 7, this figure is not enough to understand the relationship between the external radiative forcing and the atmospheric circulation changes. It may be better to investigate latitude-altitude (from the surface to the stratosphere) sections of zonal-mean temperature, zonal wind, meridional wind, vertical wind, and heating

(due to radiation, condensation and dynamics) for years 1-2 and years 4-6.

Line 23, Page 126: Please briefly explain what is COSMOS-Mill.

Line 25, Page 140 "a weakening of both polar and mid-latitude flow (Fig. 11d)": It seems that the polar flow is intensified.

Caption of Figure 7 "500 hPa meridional wind (b) and zonal wind (c)": 500 hPa zonal wind (b) and meridional wind (c)

Interactive comment on Earth Syst. Dynam. Discuss., 5, 121, 2014.