Hydrol. Earth Syst. Sci. Discuss., 9, C3373–C3374, 2012
www.hydrol-earth-syst-sci-discuss.net/9/C3373/2012/

Hydrology and Earth System Sciences Discussions

Interactive comment on "Climate change, growing season water deficit and vegetation activity along the north-south transect of Eastern China from 1982 through 2006" *by* P. Sun et al.

Anonymous Referee #1

Received and published: 27 July 2012

Authors use AVHRR NDVI, climate data and derived water deficit index to study how climate change and natural vegetation respond to climatic change from 1982 to 2006 along north-south transect of Eastern China. I recommend the paper be accepted with minor revision. The major unexpected and unexplained discovery in the paper is that growing season total NDVI increased while climate became dry in the middle of the transect within latitude 30 to 50N (lines 23 to 25 on page 6659). Authors need to have a more though analysis for why this happened in the region where many ecosystems are more limited by water availability but less limited by temperature during the growing season. Was that unexpectation caused by the reduced potential ET (PET) and actual

ET due to decreased solar radiation caused by increasing air pollution (implying more water available not less), and/or by nitrogen deposition from severe air pollution (fertilization effect), and/or reduced human interference into natural ecosystems because many rural people are migrating into cities? Following this comment, author should discuss the limitation of their PET and ET calculations since their methods of ET and PET calculations do not account for solar radiation, an important variable controlling surface water flux which may decrease (not increase) due to rapidly increasing air pollution in China.

There are also many English issues in the paper. For example, line 1-2 on page 6652; line 12-15 on page 6653; line 16 on page 6656 (Moreover not More over); line 3 on page 6658; line 14 on page 6665;

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 6649, 2012.