

Interactive comment on “The dynamics of cultivation and floods in arable lands of central Argentina” by E. F. Viglizzo et al.

E. F. Viglizzo et al.

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Comment of Anonymous Referee 1: It is not clear to me if the estimation procedure adopted to define the extend of flooded area is appropriate or not. The calculation is based on the change observed on agricultural land use (see page 2326) and consequently these two variables (landuse and ground water level) are correlated. According to the authors, the procedure was validated against satellite images that may provide a fair description of the flooding area affected by clouds, trees and floating vegetation (see Smith, 1997). This point is a central one and the validation procedure used should be described in greater details and supported by graphs and data.

Reply from Carreño, L V: In the revised version, a table will be inserted comprising correlation between the estimation of the flooded area through: a) satellite images

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and, b) land-use statistical records. Correlations coefficients (R) and their statistical signification (P value) for highlands and lowlands districts were the following:

For highlands Chapaleufú (R = 0.89; P < 0.01) Realicó (R = 0.74; P > 0.05) Trenal (R = 0.74; P < 0.05) Quemú (R = 0.81; P < 0.05) Maracó (R = 0.81; P < 0.05)

For lowlands Bolivar (R = 0.83; P < 0.01) Rivadavia (R = 0.87; P < 0.01) 9 de Julio (R = 0.68; P < 0.05) Casares (R = 0.56; P > 0.05) Pehuajó (R = 0.54; P > 0.05) Trenque Lauquen (R= 0.65; P < 0.05)

Considering that correlation coefficients (R) ranged between 0.54 and 0.89 and were significant (P<0.01 or P<0.05) in eight of the eleven study districts, we assumed that the reduction of the cultivated area is an appropriate estimator of flood extension during the flooding periods.

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