Interactive comment on “Modelling the statistical
dependence of rainfall event variables by
a trivariate copula function” by M. Balistrocchi and
B. Bacchi

M. Balistrocchi and B. Bacchi
matteo.balistrocchi@ing.unibs.it
Received and published: 26 April 2011

Dear referee, in order to better suit the outcomes shown in the paper, we agree to your
suggestion to change the title and to highlight in the abstract and in the conclusions
the absence of a significant dependence between the interevent time and the other
variables.

1. Minor points: we accept all revisions except for the first one, concerning the
expression of the empirical copula. The argument of the identification function
1(.) consists in an inequality of vector components that cannot be substituted
by an inequality of vector norms and that is meaningful because they vary only
between 0 and 1. It means that the function assumes unitary value only if all the
components of the pseudo-observation vector \( \hat{u} \), are lesser than or equal to those
of the generic point \( u \), for which the empirical copula value is evaluated. Applying
the norms would improperly modify the region, where the pseudo-observations
have to fall for satisfying the identification function condition, form the rectangular
form into a radial one. Indeed, although some authors have written such an
expression as in the paper, this formulation could actually be ambiguous and
questionable. In order to clarify such a point, the only feasible way that we see is
to explicit the \( p \) components.

\[
C_n() = \frac{1}{n} \sum_{i=1}^{n} \left( \hat{u}_{1,i} \leq u_1; \ldots; \hat{u}_{p,i} \leq u_p \right)
\]

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 429, 2011.