Clim. Past Discuss., 11, C1177–C1180, 2015
www.clim-past-discuss.net/11/C1177/2015/


Climate of the Past Discussions

# *Interactive comment on* "The historic reality of the cyclonic variability in French Antilles, 1635–2007" *by* E. Garnier et al.

**E. Garnier et al.**

egarnier.cea-cnrs@orange.fr

Received and published: 28 July 2015

Âń We thank you for your exhaustive comments of May 30th and June 2nd about which we are going to try to answer most exactly possible.

You are right to say that sources in French exist (2006, 2008 and 2012). We thus tried to find them in your papers, as you recommend it to us because we missed them in our contribution.

In Chenoweth (2006), you evoke sources already used by Millas (1968) as Annual Register and the Gentleman's Magazine (British newspapers). However, none primary French source appears (Chenoweth and Divine, 2008). Yet, our acquired experience for European research programs showed us that the contents of the foreign newspa-



pers are not totally neutral when it speaks about another country. Their access to the foreign information (in particular for climatic extremes) is partial because the French authorities (as many other countries) communicate with difficulty about the gravity of a disaster. This partisan speech is often understandable by strategic reasons and economic competition. Mainly, the primary data of these papers are extracted from the US and British archives and from exclusively Anglo-Saxon newspapers or still from the meteorological data of the US Signal Corps. On the other hand, you declare well that "the bulk of the records for the Lesser Antilles are from Saint Thomas, Guadeloupe, and Barbados" but without indicating which sources were actually used. De facto, 3 French titles (Du Tertre, Poey, Moreau de Joannes) are indicated in the list of the references but all of them are second hand sources which compile imperfect information.

In Chenoweth (2012), you declare that your collection of data (and thus sources) " is the same have that used in Chenoweth and Divine (2008) but also an update through 2009 and changes based on new data gathered. . . historical sources Âż. Unfortunately, this paper does not indicate new sources in French (see reference page 597 and 598). The titles of the quoted newspapers are English-speaking or Spanish. The rare French sources (Cotte, Morreau de Jonnès, Perrey) quoted are in reality indirect and result from Poey (1855). In practice, never these sources compiled in 18th or 19th century were since verified because this approach implies to study the archives of time. Yet, as you say it moreover very pertinently, Âń the main weakness of newspaper account. . . is vague, involving the search of the British Navy for the French Fleet. . . Âż (Chenoweth, 2012). Also, our study is on the French Antilles islands. These archives doest not offer precision about the severity of the events. Moreover, for evaluating the severity of hurricanes, it is important to rely on a homogeneus documentation like administrative archives. Our scientific approach is the one of the historical discipline which is based on the study of sources of primary archives while a book as that of Poey is considered as a second hand source. In these conditions why to use this type of secondary documentation (and thus debatable concerning the quality of the data) while we have very reliable sources drafted by the direct French persons in charge of the manage-

ment of cyclones formerly (administration, trading companies, Navy) ? For our part, we are convinced that the reconstruction of climates and extremes of past imposes to use original data rather than data compiled in the 19th century or in the 20th century or coming from indirect sources (foreign newspapers). It is about a question of ethics and about methodology appropriate to the historical discipline defined by the historian of the climate Emmanuel Le Roy Ladurie (1971).

You are perfectly right to say that we study only cyclones having struck the French islands. Contrary to what you think, our resulting historical data coming from primary archives allow us actually to assert that the cyclone struck all of the island and not only a particular place. As you know, the archives of the French West India Company and French governors contain reports of damage for every parish as well as maps from the 19th century. We know thus exactly the geographical scale of the event. In these conditions, our severity scale SSHWS measures the impact on the scale of the French islands and does not necessarily claim to be generalizable to the whole region. On this matter, we think that the title of our contribution is without ambiguity Âż.

Indeed, we have forgotten some events in the table like 1714 and 1738 but they are in the figure 2. For the hurricane in 1772 on St. Martin and St. Berthelemy, we have a report dated from 18th September 1772. We apologize for this omission. For opther cyclones, witnesses use often the term Âń cyclone Âż but the reading of the documents shows that this is in reality a Âń gale Âż. For the North hemisphere, the Saffir-Simpson wind scale is the reference scale (NOAA, Meteo France). Moreover, this scale is currently used in the scientific litterature (Landsea, 2004 ; Deo, 2011 and NOAA, 2006) see http://www.nhc.noaa.gov/pdf/TC_Book_Atl_1851-2006_lowres.pdf). In the perspective of a multidisciplinary approach to natural hazards, we think it is important to use same scale. Then we have chosen to use Saffir Simpson Wind Scale because she aim to estimate the potential damage caused by hurricanes (http://www.nhc.noaa.gov/pdf/sshws_table.pdf). The scale used by NOAA has the advantage to list the damages by type (People, Frame Homes, Trees, crops). More-



over, she includes consequences of events (Livestock, Power, Water). After “the dig in archives”, we have collected 1 000 descriptive and statistical damages informations of the hurricanes in French Antilles. After, we have evaluated the severity based on informations collected. Indeed, there was possible to find instrumental observations like 1714, 1751, 1821. . .. For the Martinique hurricane of 1891, we have not used the pressure observations (Fortier, 1894) because we have not informations of calibration and position of the barometer used. With the experience gained from various projects with Meteo France (Renasec, CHEDAR projects), it is more difficult to evaluate the quality of instrumental records without this informations for this period. We have only used instrumental data after 1940’s for comparate our methodology with the reconstruction issue of instrumental observation. Also, the validation of historical reconstruction with instrumental data has been realized for the period 1928-2007. Thanks for the reference of the Âń Dominican Chronicle Âż but we have not access for the moment at this document for evaluate quality of instrumental data.

---

Interactive comment on Clim. Past Discuss., 11, 1519, 2015.