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1871-1886

Storms of 1871 - 1876



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STORMS OF 1871-1876
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Introduction.

The present report describes results of continuing activities by its author as part of the effort of improving historical knowledge of tropical cyclones to be used in determining their 1851-1920 frequency over the Atlantic Ocean. The study of storm of tropical nature for the period 1851-1870 was addressed in previous reports prepared by the author (Fernandez-Partagas, 1994a; Fernandez-Partagas, 1994b; Fernandez-Partagas, 1994c). The present report covers the period 1871-1876. The storm documentation by Neumann et al. (1993) has already covered that period, but the study of individual storms for the 1870's has been undertaken in order to facilitate a smooth transition from the storms previously studied by the author of this study (1851-1970) and those shown in Neumann et al. (1993).

The storm study for the 1870's was designed to consist of a) checking the tracks in Neumann et al. (1993) for correctness in the light of information contained in other sources, such as tropical cyclone catalogs, books and newspapers, and b) documenting the evolution of new storm cases to be added to the ones already shown in Neumann et al. (1993).

Sources and methods.

The check of previously known storms in Neumann et al. (1993) made use of available tropical cyclone lists by several authors such as Tannehill (1938), Dunn and Miller (1960), Garriott (1900), Salivia (1972) and Garcia-Bonnelly (1958), of books and articles such as Vines (1877), Vines (1895), Academia de Ciencias (1970), Instituto Cubano de Geodesia y Cartografia (1978), Sarasola (1928), Martinez-Fortun (1942) and Fernandez-Partagas (1989) and of general news and marine intelligence contained in newspapers, primarily in The New York Times and The Times (London). Each storm which is shown in Neumann et al. (1993) for the period 1871-1876 was checked against the above information sources and appropriate modifications were proposed for the tracks which were found to be in error.

In addition, the sources above allowed the author of this study to document the evolution of some new storms which, of course, are not included in Neumann et al. (1993). The main source for the documentation of these new storm cases was the information published in newspapers, namely The New York Times and The Times (London).

Tracks for newly documented storms were then combined with those for previously known storms (Neumann et al., 1993) after having applied to them the proposed corrections along their tracks. Storms for each year in the period 1871-1876 were finally numbered in chronological order in accordance to the day they were first detected, and their tracks were displayed on a map for each individual year. The tracks are shown in Fig. 1 through Fig. 6. Estimated 7 A.M. (E.S.T.) positions were denoted by black dots

along the tracks, with adjacent numbers indicating the day of the month. The month was indicated only for the starting day of each track and, in addition, for the first day of the month when the track continued from one month to the next. The storm number was indicated by large size numbers near the beginning of the track.

Results.

The detailed study of the 1871-1876 storms is presented in the Appendix. The appendix presents 36 storms on a one-by-one basis. These storms are listed in Table 1. Six out of the 36 storms (16.7 percent) are new cases which are not included in Neumann et al. (1993). Note in the table that 2 of these new cases corresponded to 1871 and that 2 new cases were also found for 1875 and for 1876. No new cases were found for the remaining years of the period 1871-1876. Possible new cases at Port Isabel (Texas) in 1872 (Dunn and Miller, 1960), in the Gulf of Mexico and Florida, Oct. 7-10, 1876 (Tannehill, 1838) and in the Leeward Islands, Nov. 18, 1876 (Tannehill, 1838) were not taken into account because their existence and evolution could not be verified from other sources.

In regard to the number of previously known storms in Neumann et al. (1993) for which a track modification was proposed by the author of this study, Table 1 shows that some changes along the track were indicated for 18 out of the 30 storms displayed in Neumann et al. (1993) for the period 1871-1876. This means that, as a result of the present study, the majority (60 percent) of the tracks for the above mentioned 30 storms was not found to be entirely correct. The maximum number of tracks to be modified for an individual year was found to be 4 in 1872 and the corresponding minimum was found to be 2 for 1876. All other years exhibited 3 storm tracks each which needed to be corrected.

No attempt was made to formally identify the storms as hurricanes or tropical storms. In that regard, this study is consistent with the policy observed by Neumann et al. (1993) for the period 1871-1876. However, the author of this study has referred to the intensity reached by many of the storms in an informal basis. He has also addressed some other significant aspects which were associated with a few storms.

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