

Storms of 1891 - 1893

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Introduction.

The present report describes results of the author's continuing effort of improving historical knowledge of Atlantic tropical cyclones which is planned to be used in determining their frequency variation during the second half of the nineteenth century and early his century. The present report covers the period 1891-1893. The storm documentation in Neumann et al. (1993) has already covered this period, but the study of individual storms corresponding to those years was undertaken by the present author in order to check storm tracks for correctness in the light of information contained in other sources and, at the same time, trying to identify some new storms to be added to the ones in the above mentioned publication.

Sources and methods.

Sources that were used in checking the tracks in Neumann et al. (1993) were available cyclone lists such as those published in Tannehill (1938), Dunn and Miller (1960), Garriott (1900), Mitchell (1924) and Garcia-Bonnely (1958), books and articles about storms such as Salivia (1972), Sarasola (1928), Martinez-Fortun (1942), Barnes (1995), Tucker (1982) and Ho (1989), and meteorological information contained in the Monthly Weather Review and in sections of marine and general news published in newspapers, primarily in The New York Times and The Times (London). Each storm in Neumann et al. (1993) for the period 1891-1893 was checked against the above information sources and appropriate modifications were implemented for the tracks which were found to be in error. The above sources were also used in trying to identify new storms and some weather systems which seem to have had a possibility to have reached tropical storm intensity.

For each year, if new storms were documented, their tracks were combined with those of previously known storms after having applied the necessary modifications to the latter ones; then, storms were numbered in chronological order in accordance to the date they were first detected. Storm tracks for 1891-1893 are displayed on maps in Figs. 1 through 3. Estimated 7 A.M. (E.S.T) positions were denoted by black dots along the tracks, the adjacent numbers indicating the day of the month. The month was indicated for only the starting day of each track and, in addition, for the first day of the month when a track was found to continue from one month to the next. The storm number was indicated by a large size number near the beginning of the track. Tracks for tropical storms were denoted by dashed lines and tracks for hurricanes were denoted by solid lines.

Results.

The detailed study of the storms for the period 1891-1893 is presented in the Appendix. The appendix presents 32 storms on a one-by-one basis. These storms are listed in Table 1. Note in the table that no new storms were found for the above mentioned period. Note, in addition, that some changes along the track were implemented for 12 out of the 32 storms displayed in Neumann et al. (1993) for the period 1891-1893. This means that, as a result of the present study, a 37.5 percent of the tracks was not found to be entirely correct. The maximum number of tracks that were modified for an individual year was 5 in 1892, and the minimum was 3 in 1893.

Table 1
List of Storms
(1891- 1893)

List No.	Ident. # & Date (s)	New Case	Track Modified
1	Storm 1, 1891 (Jul. 3-7)	no	no
2	Storm 2, 1891 (Aug. 17-29)	no	yes
3	Storm 3, 1891 (Aug. 18-25)	no	yes
4	Storm 4, 1891 (Sept. 2-10)	no	no
5	Storm 5, 1891 (Sept. 16-26)	no	yes
6	Storm 6, 1891 (Sept. 29-Oct. 8)	no	yes
7	Storm 7, 1891 (Oct. 1-18)	no	no
8	Storm 8, 1891 (Oct. 6-11)	no	no
9	Storm 9, 1891 (Oct. 8-15)	no	no
10	Storm 10, 1891 (Oct. 12-20)	no	no
11	Storm 11, 1891 (Nov. 3-5)	no	no
12	Storm 1, 1892 (Jun. 9-16)	no	yes
13	Storm 2, 1892 (Aug. 15-24)	no	yes
14	Storm 3, 1892 (Sept. 3-17)	no	no
15	Storm 4, 1892 (Sept. 9-17)	no	no
16	Storm 5, 1892 (Sept. 12-23)	no	yes
17	Storm 6, 1892 (Sept. 25-27)	no	no
18	Storm 7, 1892 (Oct. 5-15)	no	no
19	Storm 8, 1892 (Oct. 13-19)	no	yes
20	Storm 9, 1892 (Oct. 21-28)	no	yes
21	Storm 1, 1893 (Jun. 12-20)	no	no
22	Storm 2, 1893 (Jul. 4-6)	no	no
23	Storm 3, 1893 (Aug. 13-25)	no	yes
24	Storm 4, 1893 (Aug. 15-26)	no	no
25	Storm 5, 1893 (Aug. 15-18)	no	no
26	Storm 6, 1893 (Aug. 15- Sept. 2)	no	no
27	Storm 7, 1893 (Aug. 20-29)	no	no
28	Storm 8, 1893 (Sept. 4-9)	no	no
29	Storm 9, 1893 (Sept. 25- Oct. 15)	no	yes
30	Storm 10, 1893 (Sept. 27- Oct. 5)	no	no
31	Storm 11, 1893 (Oct. 20-23)	no	no
32	Storm 12, 1893 (Nov. 5-12)	no	yes

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Captions

- Fig. 1 Storms of 1891. Estimated positions shown by black dots along the tracks are for 7 A.M. (E.S.T). Tracks for tropical storms are denoted by dashed lines and tracks for hurricanes are denoted by solid lines.
- Fig. 2 Same as Fig. 1 but for 1892.
- Fig. 3 Same as Fig. 1 but for 1893.