

22 January 2020

Global Environment and Marine Department

Japan Meteorological Agency

## **Issue with tropical cyclone analysis in JRA-55**

Some tropical cyclones occurring over the Northeast Pacific and the North Atlantic from 1959 to 1987 were erroneously represented as anti-cyclonic vortices in the Japanese 55-year Reanalysis (JRA-55) dataset. Accordingly, supplementary information detailing the dates and positions of these events has been provided.

### **Cause**

In the JRA-55 dataset, tropical cyclone information (i.e., estimates of center position, maximum wind speed and other variables based on various observations) from an external source was used for part of the reanalysis period in relation to analyzing atmospheric fields such as pressure and wind. In this information, missing values for maximum wind speed were basically represented as “-999”, while, “-99” was used for previous values and regions. The issue stems from the inadvertent use of “-99” as the maximum wind speed in the production of JRA-55.

### **Impact**

For erroneously represented tropical cyclones, results from analysis of atmospheric fields in the troposphere (from the surface up to around 100 hPa) were unrealistic within a radius of approximately 1,000 km from the center position (Fig. 1). Users are advised to check the supplementary lists of dates and positions for the erroneously represented tropical cyclones to determine potential impacts.

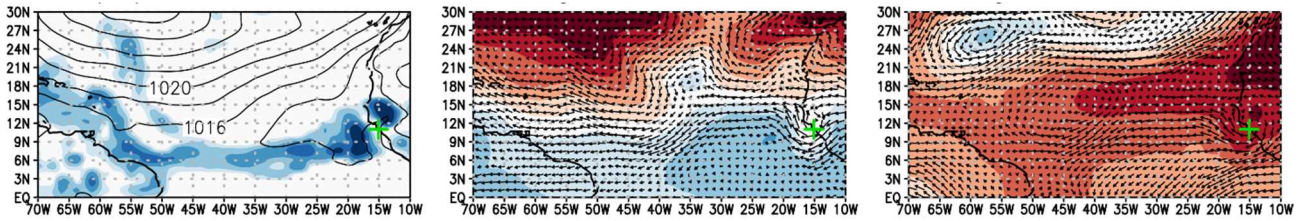
JMA sincerely apologizes for any inconvenience caused by this issue.

- **Supplements**

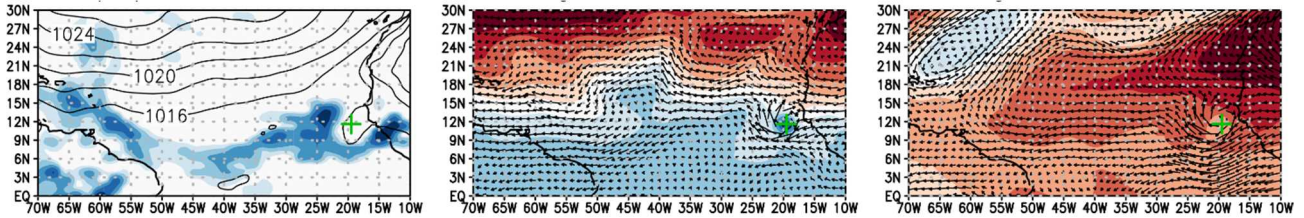
- Dates/positions of erroneously represented tropical cyclones
  - (Northeast Pacific) anti-cyclonic\_TCs\_E\_en.txt
  - (North Atlantic) anti-cyclonic\_TCs\_L\_en.txt

Related inquiries can be directed to [jra@met.kishou.go.jp](mailto:jra@met.kishou.go.jp).

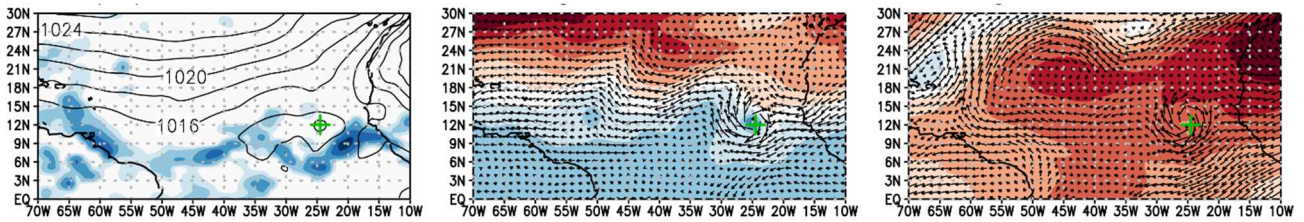
5 July 1967, 12 UTC, tropical cyclone center (11.0°N, 15.1°W)



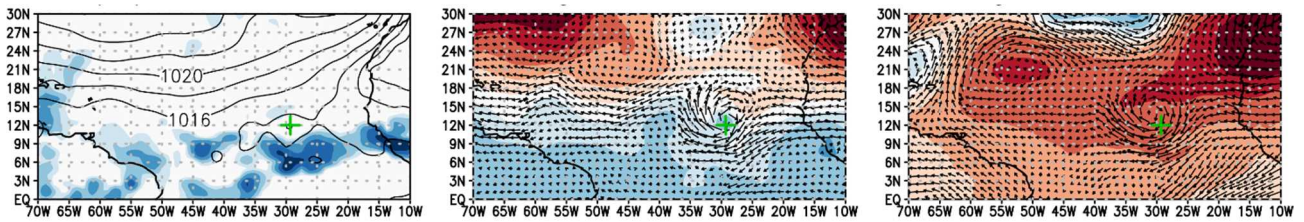
6 July 1967, 12 UTC, tropical cyclone center (11.6°N, 19.5°W)



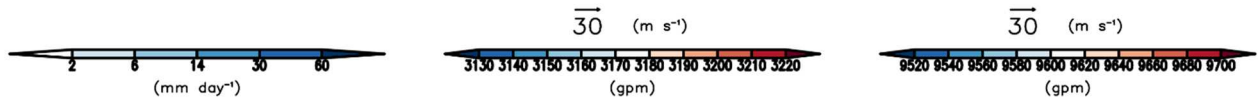
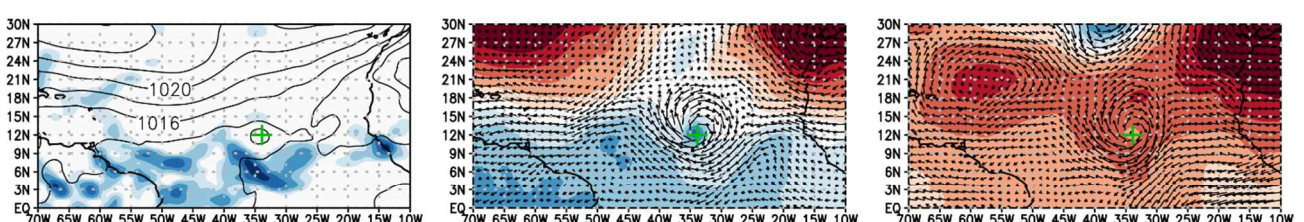
7 July 1967, 12 UTC, tropical cyclone center (12.0°N, 24.5°W)



8 July 1967, 12 UTC, tropical cyclone center (12.0°N, 29.3°W)



9 July 1967, 12 UTC, tropical cyclone center (12.0°N, 33.9°W)



**Fig. 1. JRA-55 representation of the 1967/05L tropical cyclone over the North Atlantic from 5 to 9 July 1967** (Left) Contours show pressure reduced to mean sea level, and shading indicates precipitation from 12 to 15 UTC. (Center) Vectors show wind, and shading indicates geopotential height at 700 hPa. (Right) as per (Center), but for 300 hPa. Plus signs represent tropical cyclone centers.

Erroneously represented tropical cyclones are characterized by insufficient precipitation around central areas, anti-cyclonic circulation embedded in the basic cyclonic flow around the lower troposphere, and enhanced anti-cyclonic circulation in basic anti-cyclonic flow around the upper troposphere.