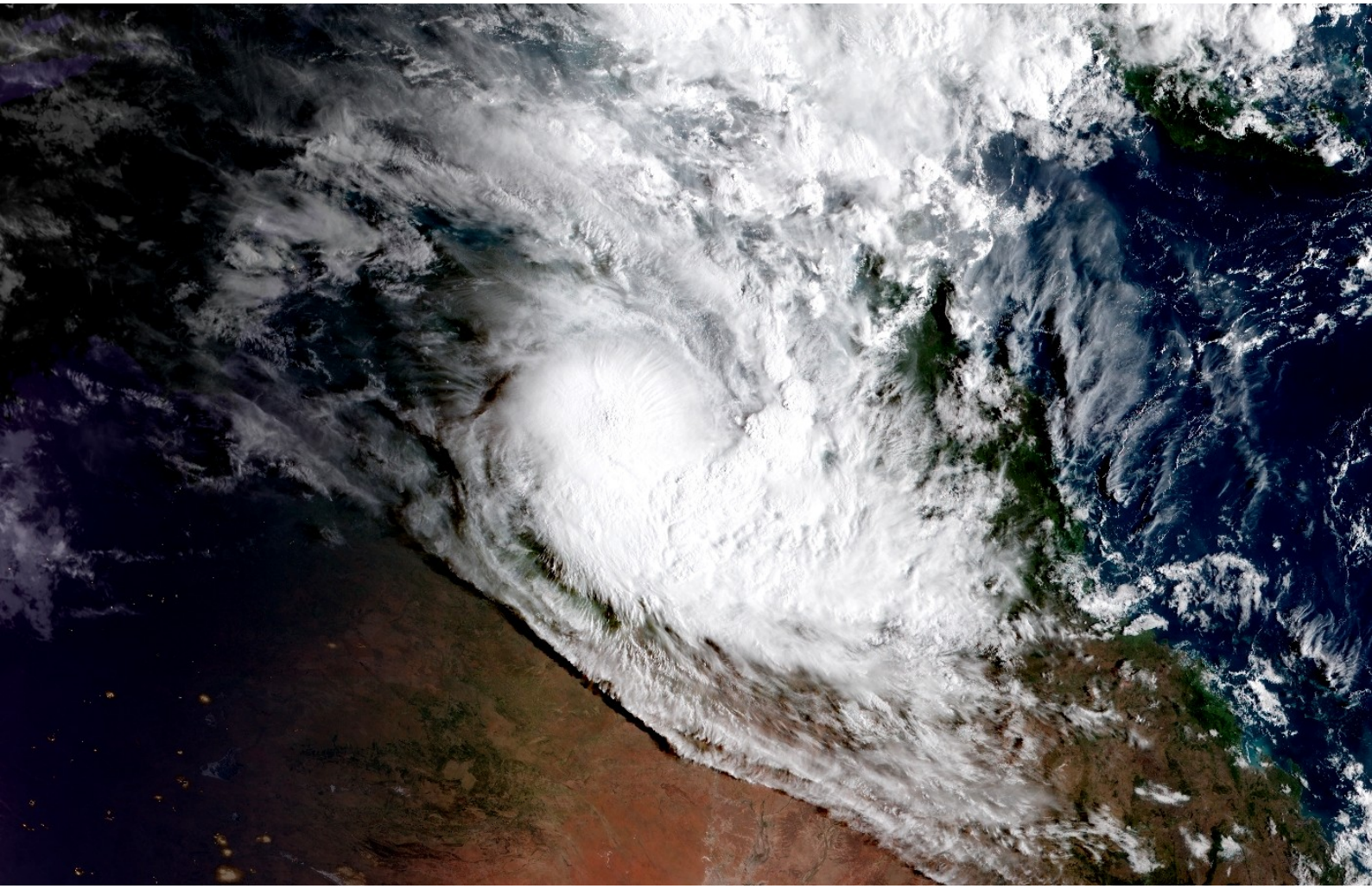
2017

Force Thirteen Cyclone Reports

Cyclone Alfred (201704)



Cyclone Alfred was a weak storm that existed in the Gulf of Carpentaria in the second half of February 2017.

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Cover photo: Himawari-8 image of Cyclone Alfred at peak intensity, 22:00 UTC on February 19th

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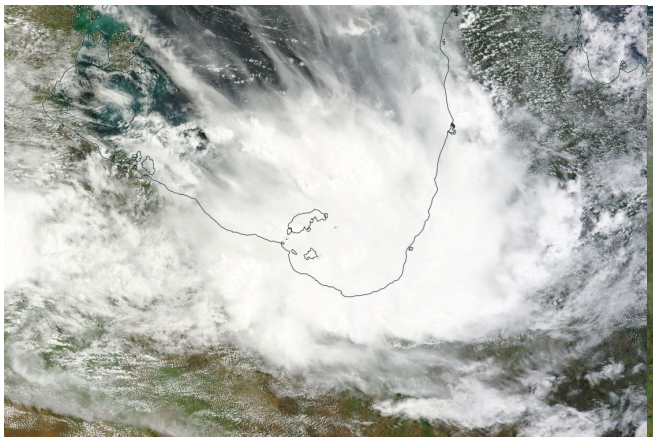
1.1. Synoptic History

On February 10th, an area of thunderstorms existed in the western half of the Gulf of Carpentaria, and gradually sunk southeastwards over the course of the next five days, expanding on February 15th and flaring up significantly into the 16th, where the system briefly attained tropical cyclone status, just north of Mornington Island.

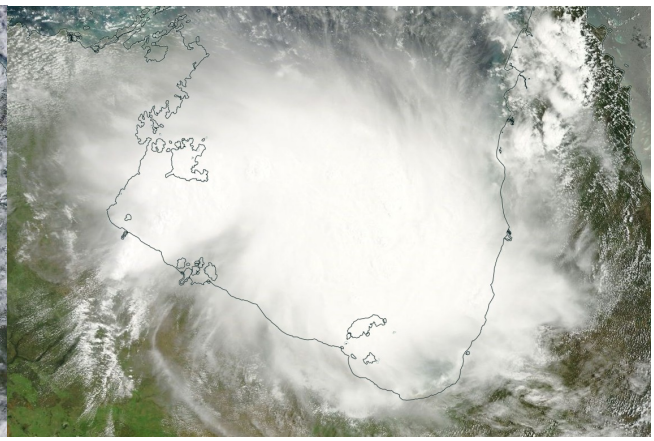
By evening on the 16th, the system, which had remained nameless according to the Australian Bureau of Meteorology, dwindled and made landfall on the Gulf Country coast, and moved inland by over 100 miles over the next two days, moving southwesterly at first, and then towards the northwest and north by February 18th.

As the system neared the coast once more, explosive thunderstorms began over the water and over Groote Eylandt, with cloud tops at times reaching –90°C, and the centre of the storm itself gained significant convection whilst still inland on February 18th. The storm would not be named by the BOM for another 24 hours, when another impressive convection burst occurred.

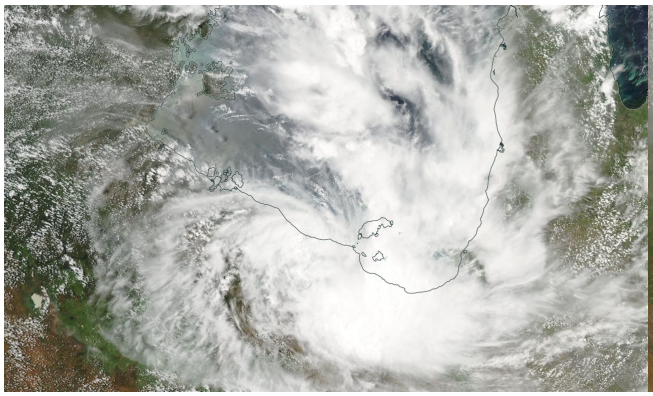
By early on February 20th, the storm was waning again and lost tropical storm status by 06:00 UTC. The system retained a weak centre of circulation and made landfall for a final time early on February 21st. Significant thunderstorms and weak rotation continued into late on February 22nd, delivering significant rainfall to the Gulf Country region.



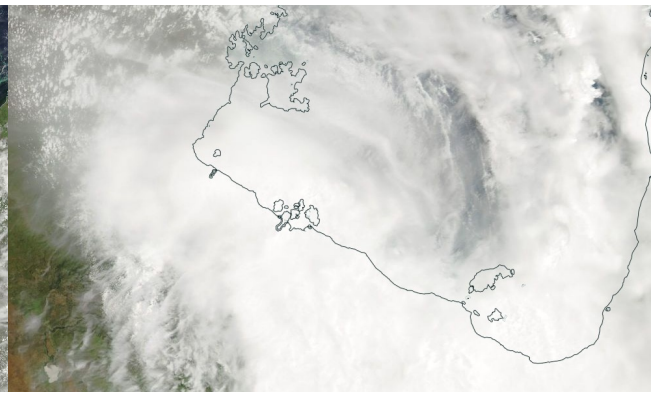
February 14th



February 16th



February 17th



February 20th

1.2. Best Track

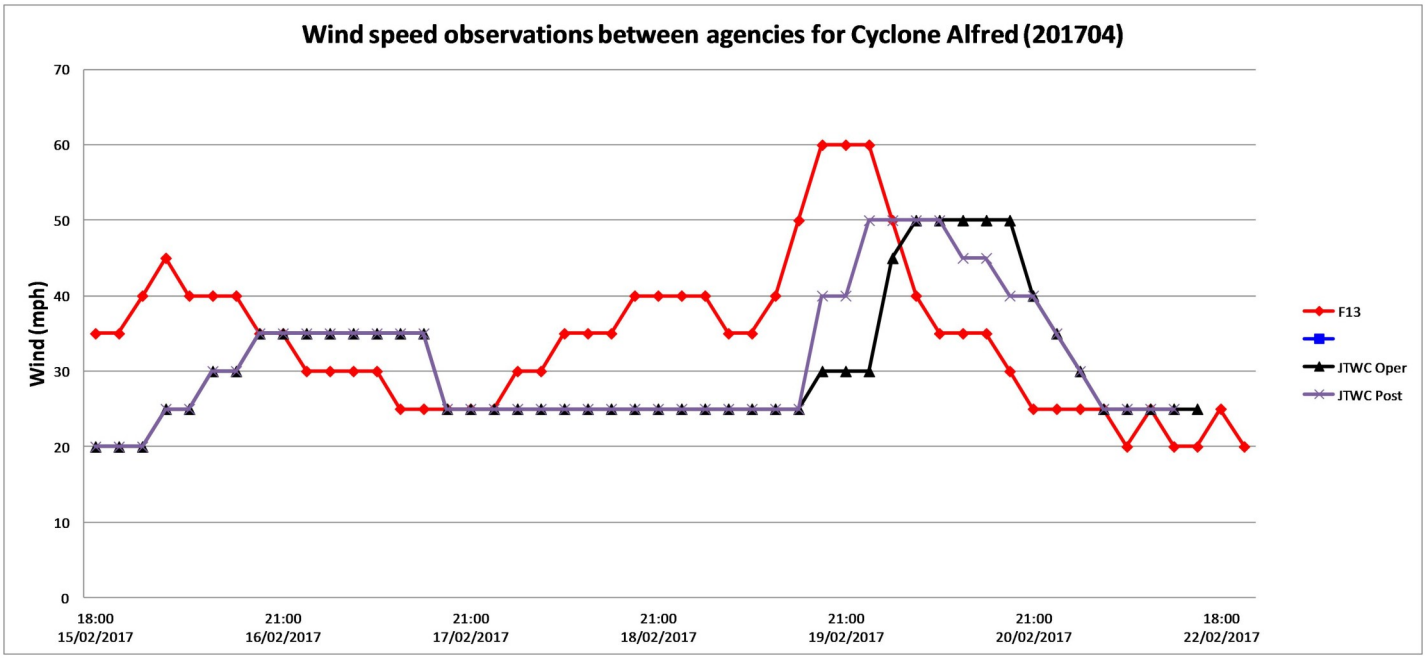
Below is the best track analysis from Force Thirteen, using Force Thirteen's SATOPS—a tool which uses infrared satellite imagery and cloud temperatures to estimate a storm's wind speed and air pressure. SATOPS does not take precedence over surface observations.

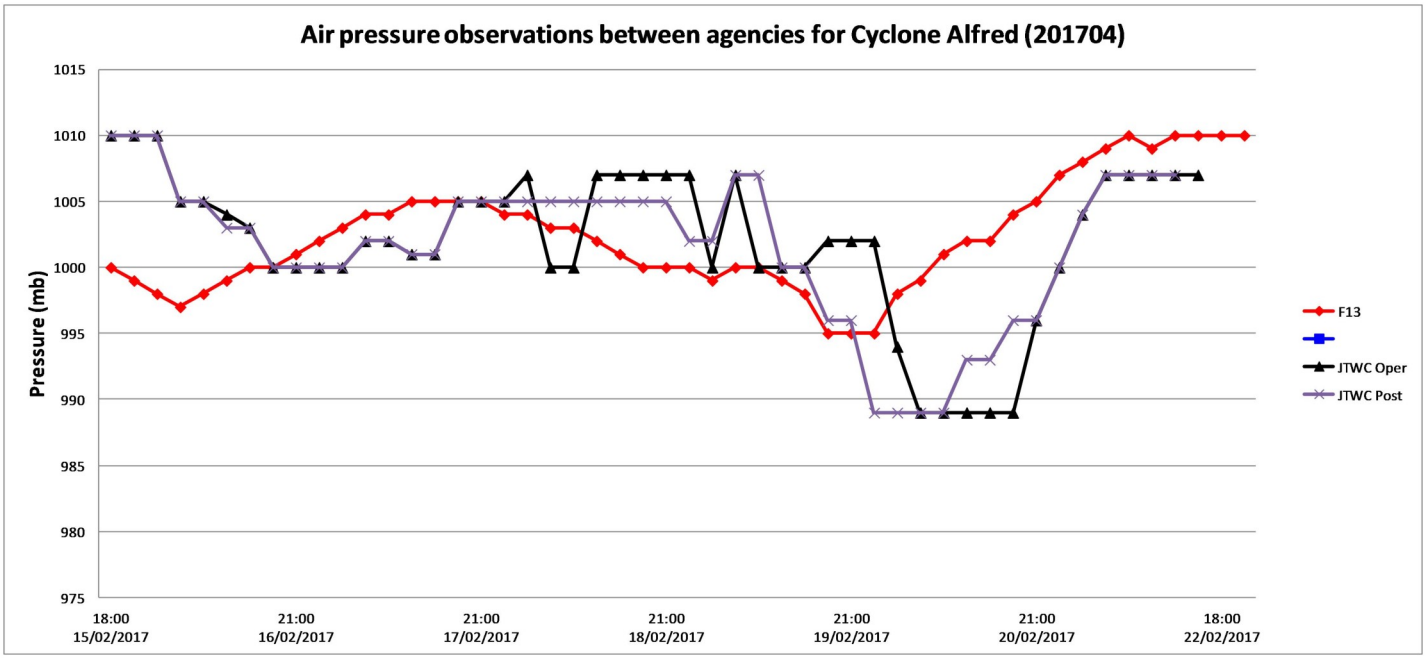
Date (dd/mm/yyyy)	Time	Latitude	Longitude	Wind	Press	Stage
15/02/2017	18:00	-15.9	140.3	35	1000	Tropical Depression
16/02/2017	00:00	-16	139.8	35	999	Tropical Depression
16/02/2017	03:00	-16.7	139.6	40	998	Tropical Storm
16/02/2017	06:00	-16.8	139.5	45	997	Tropical Storm
16/02/2017	09:00	-16.9	139.5	40	998	Tropical Storm
16/02/2017	12:00	-17	139.4	40	999	Tropical Storm
16/02/2017	15:00	-17	139.2	40	1000	Tropical Storm
16/02/2017	18:00	-17	139.1	35	1000	Tropical Depression
16/02/2017	21:00	-16.9	138.7	35	1001	Tropical Depression
17/02/2017	00:00	-17.2	138.5	30	1002	Tropical Depression
17/02/2017	03:00	-17.3	138.2	30	1003	Tropical Depression
17/02/2017	06:00	-17.1	137.9	30	1004	Tropical Depression
17/02/2017	09:00	-17	137.7	30	1004	Tropical Depression
17/02/2017	12:00	-16.9	137.6	25	1005	Tropical Depression
17/02/2017	15:00	-17.2	137.2	25	1005	Tropical Depression
17/02/2017	18:00	-17.3	136.7	25	1005	Tropical Depression
17/02/2017	21:00	-16.7	136.4	25	1005	Tropical Depression
18/02/2017	00:00	-16.5	136.3	25	1004	Tropical Depression
18/02/2017	03:00	-16.4	136	30	1004	Tropical Depression
18/02/2017	06:00	-16.3	135.8	30	1003	Tropical Depression
18/02/2017	09:00	-16.1	135.7	35	1003	Tropical Depression
18/02/2017	12:00	-16	135.6	35	1002	Tropical Depression
18/02/2017	15:00	-15.8	135.7	35	1001	Tropical Depression
18/02/2017	18:00	-15.6	135.8	40	1000	Tropical Storm
18/02/2017	21:00	-15.4	135.9	40	1000	Tropical Storm
19/02/2017	00:00	-15.4	136.1	40	1000	Tropical Storm
19/02/2017	03:00	-15.3	136	40	999	Tropical Storm
19/02/2017	06:00	-15.1	135.9	35	1000	Tropical Depression
19/02/2017	09:00	-15	135.8	35	1000	Tropical Depression
19/02/2017	12:00	-14.8	136.2	40	999	Tropical Storm
19/02/2017	15:00	-15.2	136.4	50	998	Tropical Storm
19/02/2017	18:00	-15.2	137	60	995	Tropical Storm
19/02/2017	21:00	-15.3	137.2	60	995	Tropical Storm
20/02/2017	00:00	-15.4	136.8	60	995	Tropical Storm
20/02/2017	03:00	-15.5	136.6	50	998	Tropical Storm
20/02/2017	06:00	-15.7	136.6	40	999	Tropical Storm
20/02/2017	09:00	-15.7	136.8	35	1001	Tropical Depression
20/02/2017	12:00	-15.8	137.5	35	1002	Tropical Depression
20/02/2017	15:00	-15.8	137.7	35	1002	Tropical Depression
20/02/2017	18:00	-15.8	137.8	30	1004	Remnant Low
20/02/2017	21:00	-15.9	137.9	25	1005	Remnant Low
21/02/2017	00:00	-16	138	25	1007	Remnant Low
21/02/2017	06:00	-16.6	137.9	25	1008	Remnant Low
21/02/2017	12:00	-16.5	138	25	1009	Remnant Low
21/02/2017	18:00	-15.9	137.2	20	1010	Remnant Low
22/02/2017	00:00	-16.3	136.8	25	1009	Remnant Low
22/02/2017	06:00	-16.3	136.7	20	1010	Remnant Low
22/02/2017	12:00	-16.4	136.6	20	1010	Remnant Low
22/02/2017	18:00			25	1010	Remnant Low
23/02/2017	00:00			20	1010	Remnant Low

1.3. Track Chart

1.4. Comparison with other agencies

Alfred was monitored by the Regional Specialized Meteorological Centre in Australia, and by the U.S. Joint Typhoon Warning Center. Best track data is not yet available from the Bureau of Meteorology, and so below shows comparisons between the JTWC and Force Thirteen's Best Track.





2. Effects on Land

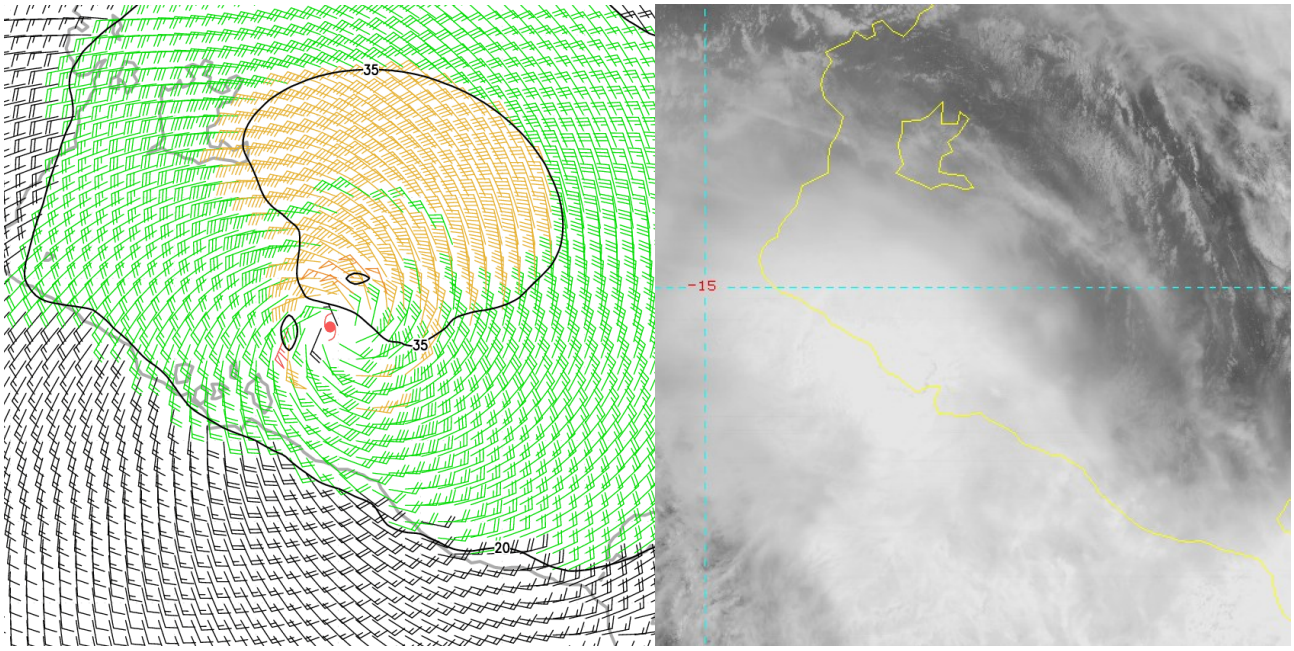
Cyclone Alfred made its presence felt across the Gulf of Carpentaria, particularly with the high amount of rainfall it produced. Winds also reached over 50mph sustained on land, with pressures as low as 997mb. In some locations over the Gulf of Carpentaria waters, satellites indicated rainfall amounts of up to 350mm.

Wind Reports

Centre Island, NT	53mph
ASCAT Satellite	50mph

Rain Totals (Satellite Derived)

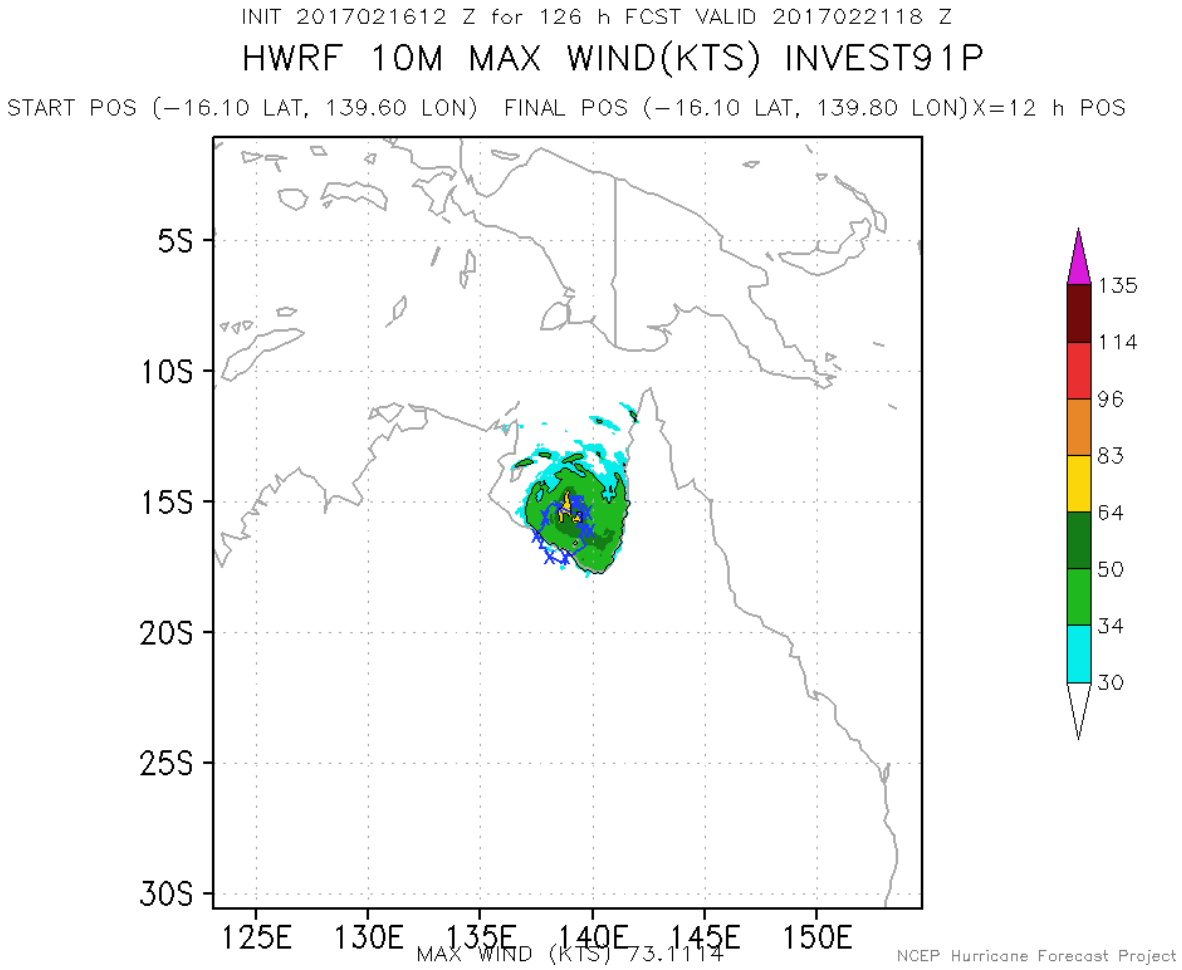
Burketown	280mm
Bountiful Islands	180mm
Borroloola	160mm
Centre Island	160mm
Bentinck Island	140mm
Mornington Island	90mm



Satellite estimated winds and visible satellite image of Cyclone Alfred near peak intensity.

3. Forecasting Critique

Force Thirteen and the Joint Typhoon Warning Center didn't issue warnings and forecasts until February 19th, when the storm was officially named. However, model output and the Bureau of Meteorology's forecasts were uncertain about the future of the system prior to formation. Most models predicted that the storm would stall around the areas in which it did so, with the GFS being closest to the mark overall.
The HWRF model again overestimated the storm, and the NAVGEM model suggested that the system would reach the eastern shore of the Gulf.
Later, model accuracy improved, and the storm was fairly easy to predict once it attained the name Alfred, as the storm was barely 24 hours away from losing its status.



The HWRF model predicting a Category 1 cyclone in the Gulf of Carpentaria, issued at 12:00 UTC on February 16th.

4. Cyclone Destruction Potential Scale

The Cyclone Destruction Potential Scale (CDPS) is a new way of measuring cyclone impacts in a more meaningful way. For the past 45 years, storms worldwide have been measured using the Saffir-Simpson Hurricane Wind Scale, split into five categories. However, this scale measures wind alone, and does not correlate well with actual impacts on land, measured by monetary damage.
The CDPS measures other factors, such as storm size and forward speed as well as intensity to create a ten tiered scale that encompasses tropical storms as well as hurricanes.

Stage 1—Small or weak storms that are unlikely to cause a significant impact.
Stage 2—Generally disorganised storms that can cause significant damage.
Stage 3—Further organised systems that are likely to cause significant damage.
Stage 4—Somewhat powerful storms that are likely to cause extensive damage.
Stage 5—Powerful storms that are likely to cause devastating damages.
Stage 6—Very powerful storms that are likely to cause catastrophic damage.
Stage 7—Extremely powerful storms that are likely to cause catastrophic damage.
Stage 8—Super storms that are likely to cause incredible damage.
Stage 9—Super storms that may cause total damage.
Stage 10—Super storms that are likely to cause total damage.

Cyclone Alfred was the third storm to be observed by Force Thirteen using the CDPS—a method which was adopted in January 2017.

Alfred was a Stage 2 cyclone at peak.

The Cyclone Destruction Potential Scale was created by Devon Williams in 2016. More information can be found at: https://drive.google.com/file/d/0B7pEWk6yHKggSE1STHg2UFJmbHM/view

5. Force Thirteen's Coverage on Alfred

Force Thirteen issued one video update on Cyclone Alfred, due to its short life in the Gulf of Carpentaria and the delay in naming the storm.

Viewer approval rating during the storm was 100%.

Comments, suggestions and inquiries should be directed to force-13@hotmail.co.uk, or any of Force Thirteen's online platforms.