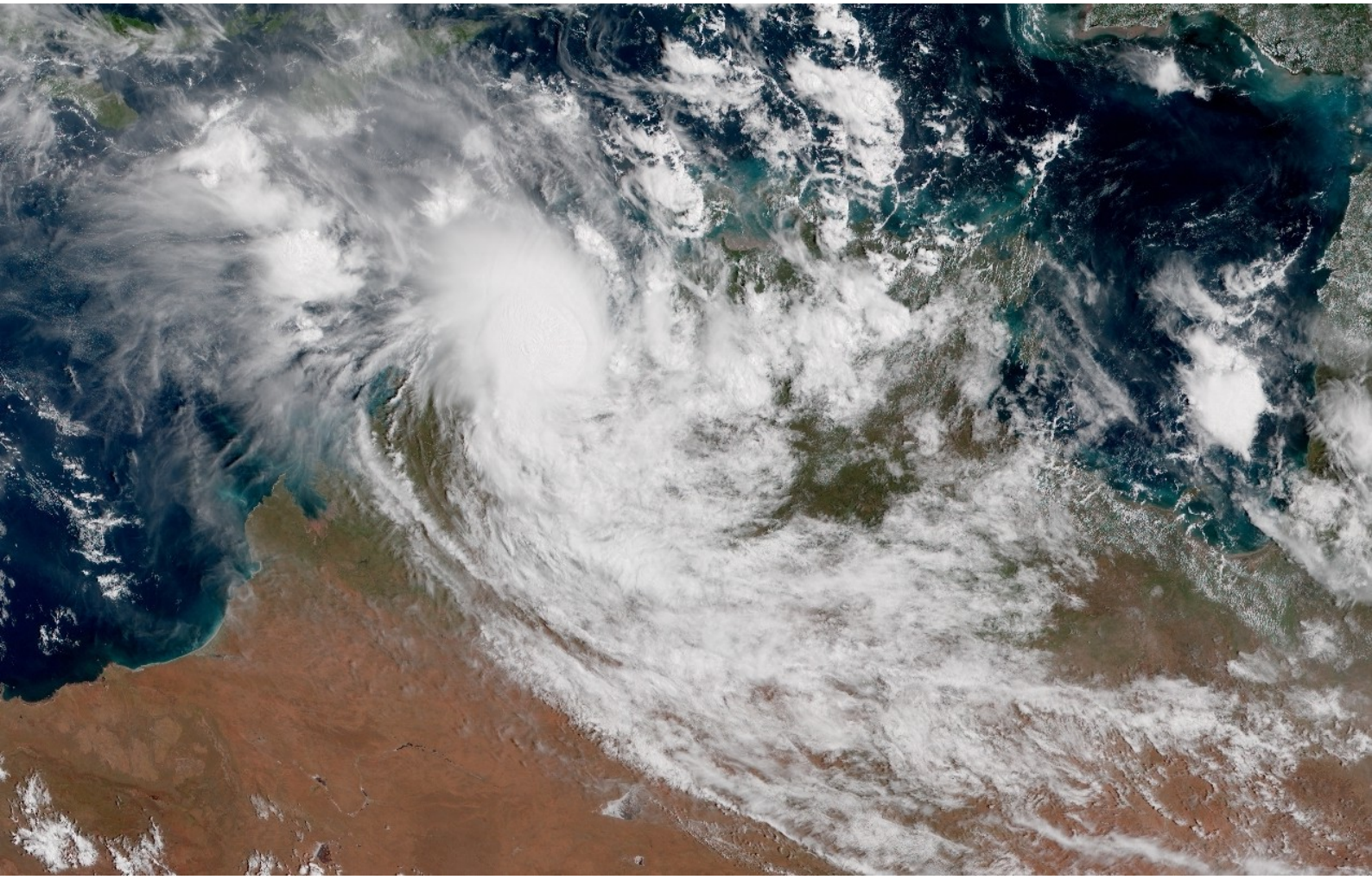
2017

Force Thirteen Cyclone Reports

Cyclone Blanche (201708)



Cyclone Blanche was a fairly short lived cyclone which originated in the Arafura Sea, and ultimately made landfall in the Kimberley region of Western Australia.

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Cover photo: Himawari-8 image of Cyclone Blanche near peak intensity on March 6th at 01:00 UTC.

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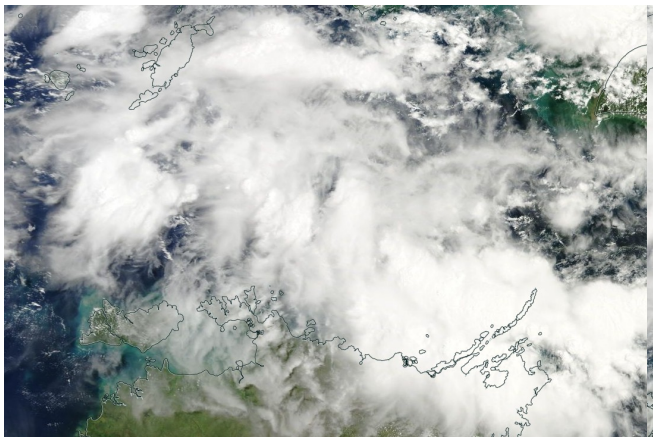
1.1. Synoptic History

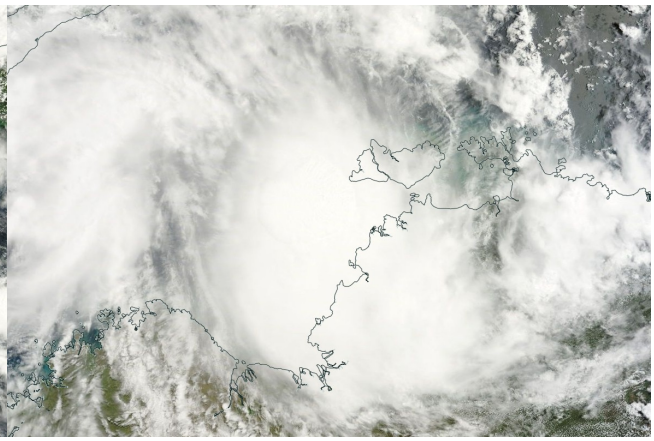
On March 2nd, a new disturbance formed near the Aru islands in eastern Indonesia, over the Arafura Sea, and was moving to the southwest. Initially very disorganised, the system passed close to Yamdena, and then approached the Tiwi islands of the Australian Northern Territory. Rotation became more apparent as the system crossed the island, and by the first hours of March 5th, land stations were beginning to report tropical storm force winds, at which the Australian Bureau of Meteorology named the storm Blanche.

Blanche initially lost some momentum, before a new explosive burst of convection began in the late morning of March 5th and was sustained until landfall early the next day near Faraway Bay, Western Australia. Within six hours, the convection stopped firing and Blanche quickly began to dissolve over land.

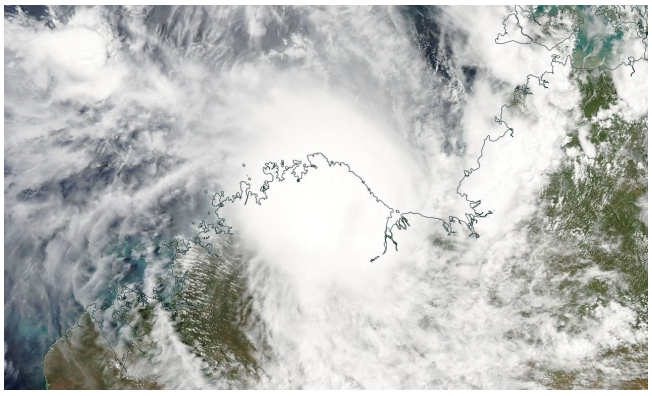
Remnants of its convection proceeded towards the south late on March 6th, though the center of the storm moved much more slowly and towards a west-southwesterly direction, eventually turning west back out into the Timor Sea. High wind shear thwarted any further attempts for Blanche to regenerate, with its circulation becoming more broader and finally ceasing to exist by March 11th.



March 2nd



March 5th



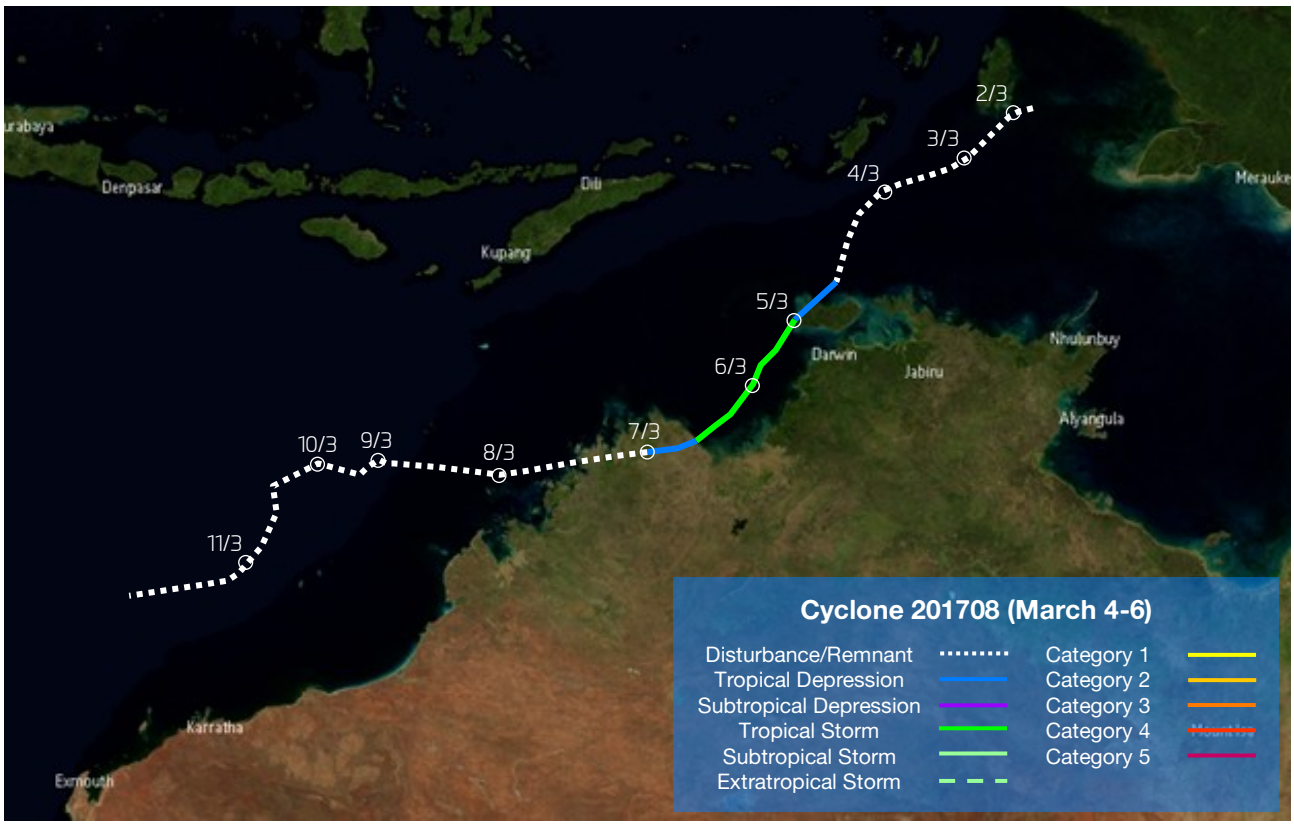
March 6th

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.

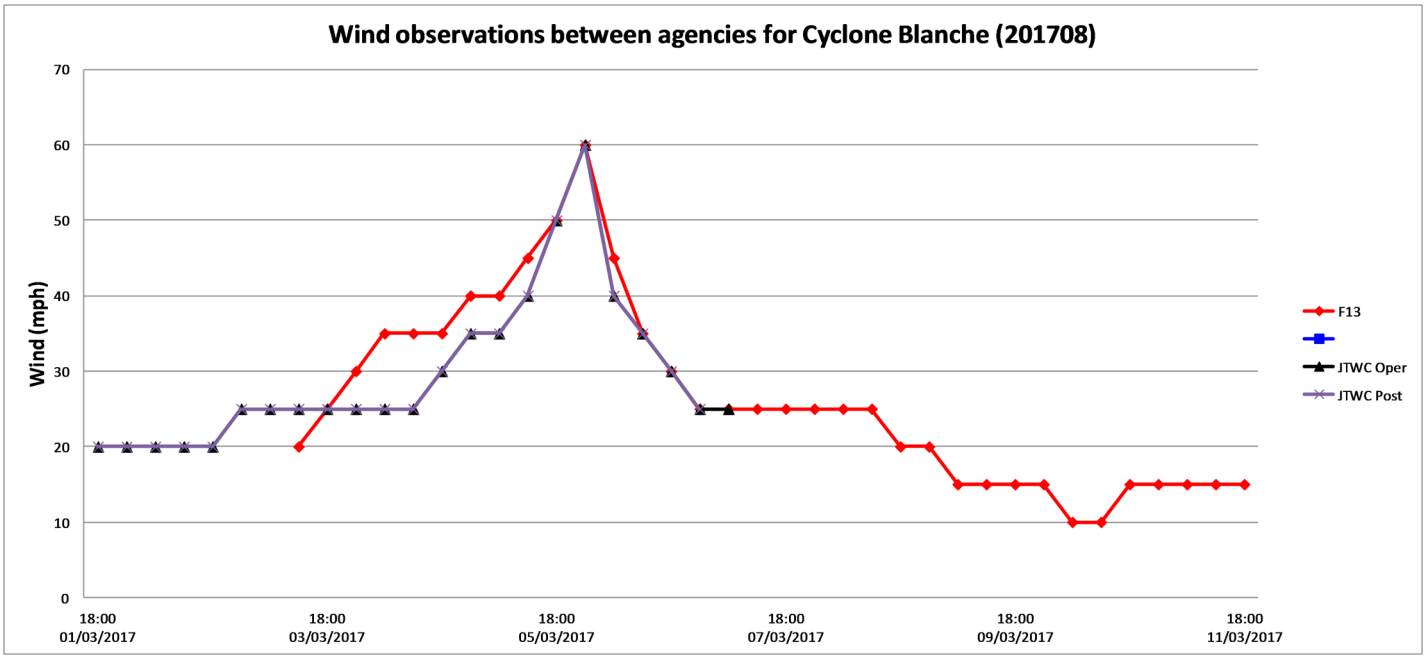
Date (dd/mm/yyyy)	Time	Latitude	Longitude	F13	F13	Stage
01/03/2017	18:00	-6.9	135.2			
02/03/2017	00:00	-7	134.9			
02/03/2017	06:00	-7.2	134.7			
02/03/2017	12:00	-7.5	134.5			
02/03/2017	18:00	-7.8	134.2			
03/03/2017	00:00	-8	133.8			
03/03/2017	06:00	-8.2	133.2			
03/03/2017	12:00	-8.4	132.6	20	1006	Tropical Disturbance
03/03/2017	18:00	-8.6	132	25	1004	Tropical Disturbance
04/03/2017	00:00	-9.1	131.6	30	1002	Tropical Disturbance
04/03/2017	06:00	-9.7	131.3	35	1002	Tropical Disturbance
04/03/2017	12:00	-10.4	131.2	35	1000	Tropical Disturbance
04/03/2017	18:00	-11.4	130.8	35	997	Tropical Depression
05/03/2017	00:00	-12	130	40	994	Tropical Storm
05/03/2017	06:00	-12.8	129.6	40	996	Tropical Storm
05/03/2017	12:00	-13	129.4	45	993	Tropical Storm
05/03/2017	18:00	-13.5	129.2	50	991	Tropical Storm
06/03/2017	00:00	-14	128.9	60	990	Tropical Storm
06/03/2017	06:00	-14.2	128.7	45	995	Tropical Storm
06/03/2017	12:00	-14.5	128.5	35	999	Tropical Depression
06/03/2017	18:00	-14.8	128	30	1003	Tropical Depression
07/03/2017	00:00	-14.9	127	25	1007	Remnant Low
07/03/2017	06:00	-15	125.8	25	1008	Remnant Low
07/03/2017	12:00	-15.1	124.5	25	1009	Remnant Low
07/03/2017	18:00	-15.4	123.6	25	1010	Remnant Low
08/03/2017	00:00	-15.7	122.9	25	1009	Remnant Low
08/03/2017	06:00	-15.3	121.8	25	1009	Remnant Low
08/03/2017	12:00	-14.9	120.9	25	1008	Remnant Low
08/03/2017	18:00	-15	120.7	20	1009	Remnant Low
09/03/2017	00:00	-14.9	120.5	20	1011	Remnant Low
09/03/2017	06:00	-15.1	120.3	15	1012	Remnant Low
09/03/2017	12:00	-15.3	120.2	15	1013	Remnant Low
09/03/2017	18:00	-15.5	120.1	15	1013	Remnant Low
10/03/2017	00:00	-14.8	119	15	1013	Remnant Low
10/03/2017	06:00	-15.4	118.1	10	1014	Remnant Low
10/03/2017	12:00	-16.7	118.3	10	1014	Remnant Low
10/03/2017	18:00	-17.4	117.4	15	1013	Remnant Low
11/03/2017	00:00	-17.9	116.6	15	1013	Remnant Low
11/03/2017	06:00	-18.2	116.3	15	1013	Remnant Low
11/03/2017	12:00	-18.4	115.9	15	1013	Remnant Low
11/03/2017	18:00	-18.7	114.9	15	1013	Remnant Low

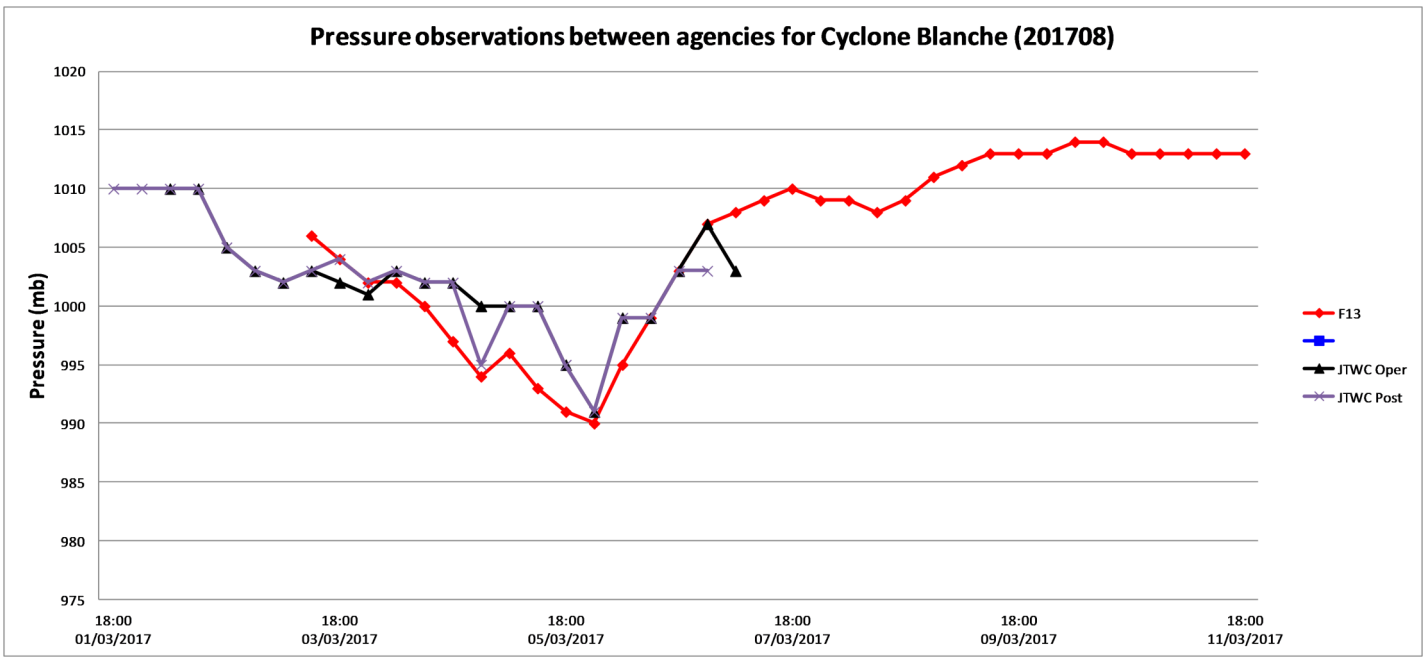
1.3. Track Chart



1.4. Comparison with other agencies

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





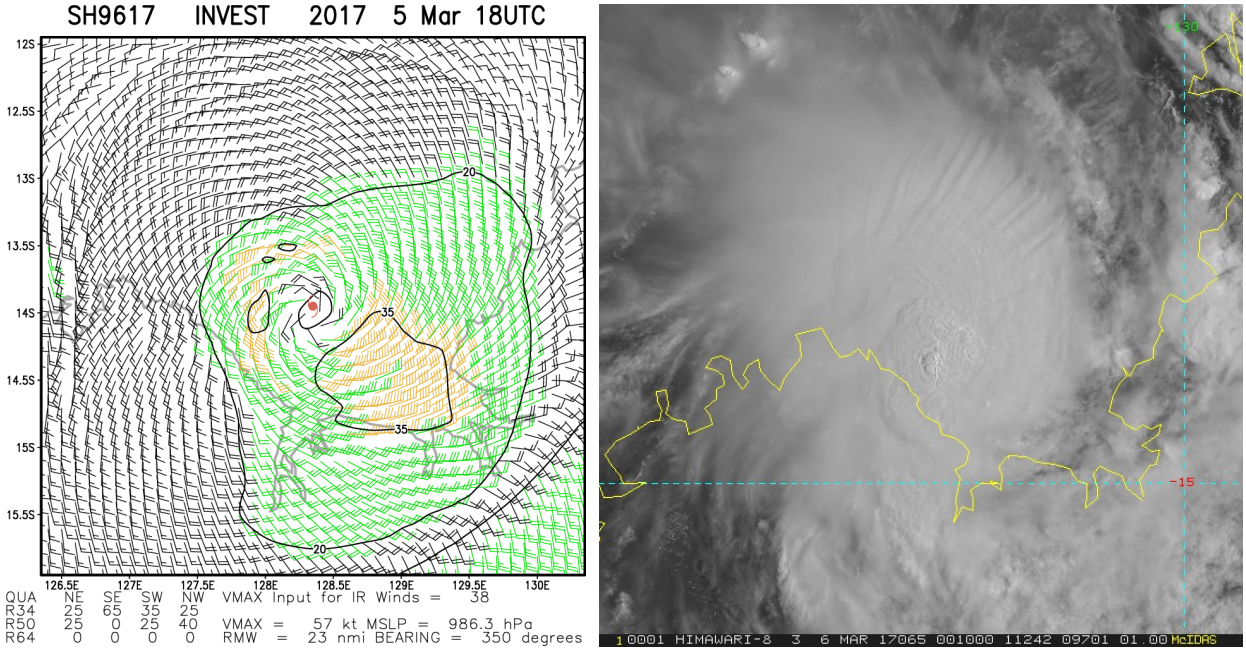
2. Effects on Land

Cyclone Blanche delivered modest amounts of rain to Yamdena, Indonesia, during its formative stages. The system then delivered up to 5 inches (125mm) of rainfall to the Tiwi islands, particularly to the west, and isolated amounts of up to 5 inches in the Kimberley region of Western Australia. However, the highest rainfall totals were measured in interior areas of the Top End, with amounts exceeding 10 inches (250mm).

Wind reports:
Point Fawcett 37mph

Satellite-derived rainfall observations:
Indonesia
Saumlaki 10mm

Australia
Pine Creek 250mm
Point Fawcett 140mm
Darwin 60mm
Wurrumlyanga 50mm
Wyndham <10mm



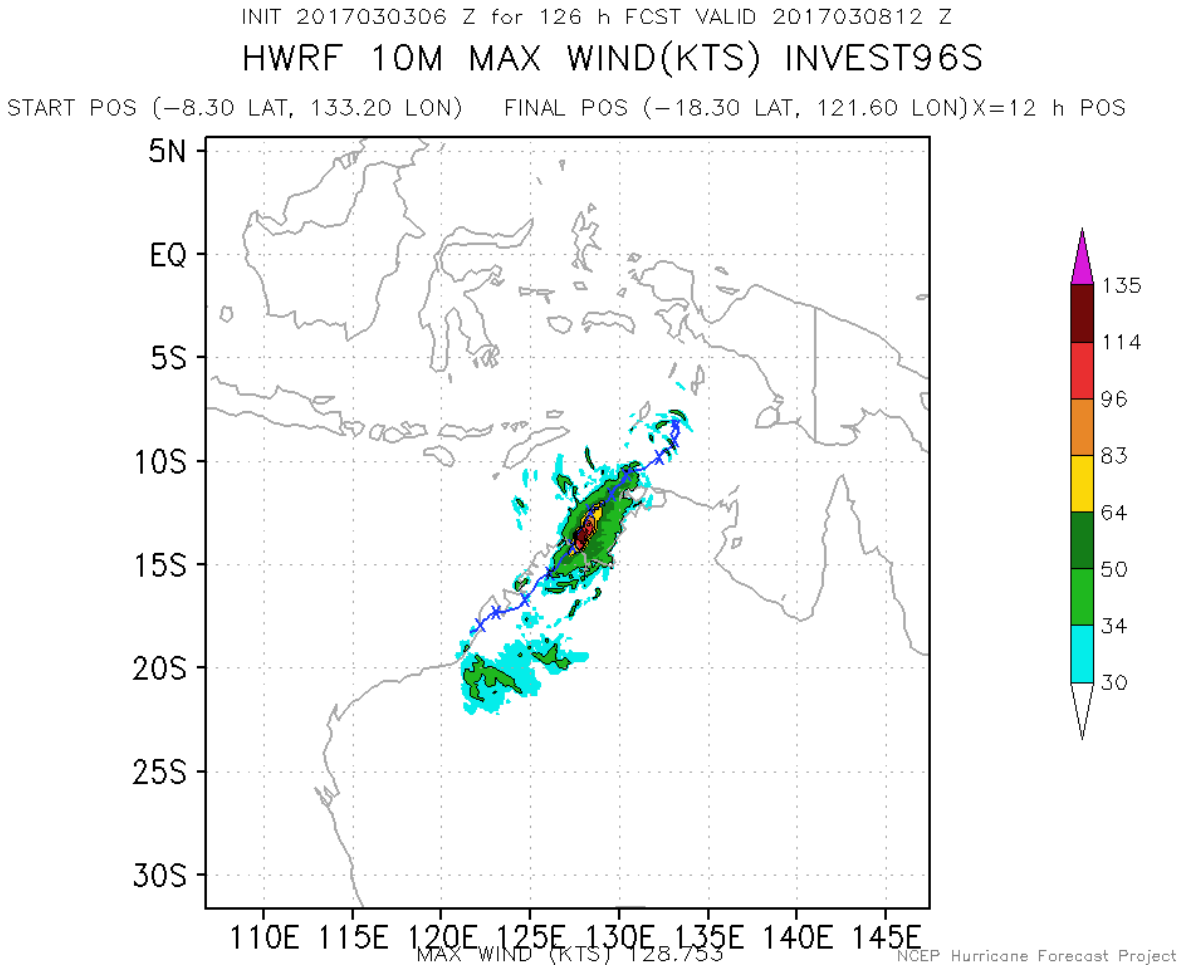
Satellite estimated winds and visible satellite image of Cyclone Blanche near peak intensity.

3. Forecasting Critique

By some distance, the best performer of the computer models was the GFDL, who predicted Blanche's track and intensity with a high degree of accuracy. The NAVGEM followed, though never forecasted the storm to reach wind speeds higher than 45mph. The poor performers in the storm's formative stages were from the GFS and HWRF, who both predicted a compact but intense storm making landfall in the Kimberley region. However, most models predicted the storm's track fairly well.

By the time Blanche formed, most models had converged onto a consensus, though some still predicted a hurricane-strength cyclone. Force Thirteen's official forecasts never predicted a hurricane.

Forecasts by the Bureau of Meteorology were fairly accurate, particularly with landfall intensity, correctly predicting a Category 2 landfall on the Australian wind scale.
The Joint Typhoon Warning Center underestimated the storm upon formation and on its initial forecast, calling for no more than a minimal tropical storm.



An early model run from the HWRF, showing Blanche with winds of over 130mph. This model run was initialised at 06:00 UTC on March 3rd.

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

Blanche was a Stage 2 cyclone at peak, almost reaching Stage 3 near landfall.

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 Blanche

Force Thirteen issued three updates on Cyclone Blanche. The videos received a 100% approval rating during the storm. Top viewing countries for the updates were Mauritius (482), the United States (423) and Australia (187).

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