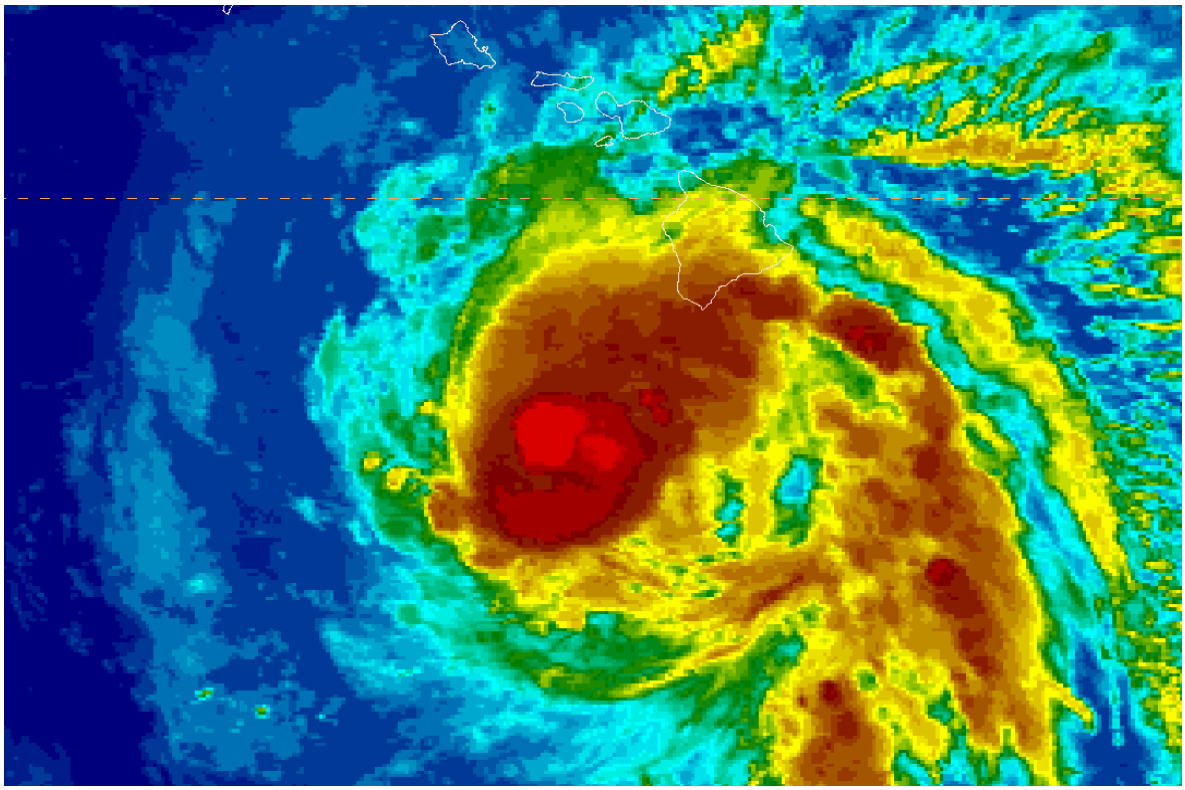
CENTRAL PACIFIC HURRICANE CENTER
TROPICAL CYCLONE REPORT

HURRICANE ANA
(CP022014)

13 – 26 October 2014

Jeff Powell
Central Pacific Hurricane Center

17 July 2015



GOES-15 ENHANCED INFRARED IMAGE OF HURRICANE ANA AT 0600 UTC ON 18 OCTOBER 2014

Ana was a long-lived tropical system that formed over the central North Pacific Ocean, reaching hurricane strength while passing close to but just south of the main Hawaiian Islands. Ana recurved west of the islands but east of the dateline, producing a record track length for a tropical cyclone originating in the Central North Pacific basin.

HURRICANE ANA

13 – 26 OCTOBER 2014

SYNOPTIC HISTORY

The circulation which eventually became Hurricane Ana formed within an area of intense but disorganized deep convection from 07N to 14N east of 145W which had been persistent for at least a week through mid-October. This convection also flourished along the southeast flank of an upper low about 800 miles to the west northwest. Flooding rainfall triggered by this preceding upper low occurred across portions of the main Hawaiian Islands several days before these islands felt the effects of Ana. The Central Pacific Hurricane Center (CPHC) first recognized potential for development east of 145W, in coordination with the National Hurricane Center (NHC), in its 0000 UTC 12 October Tropical Weather Outlook. Convection become rapidly more organized over the next 36 hours, prompting the CPHC to issue bulletins on Tropical Depression 02C at 2100 UTC 13 October. Convection continued to organize rapidly and this system was upgraded to Tropical Storm Ana at 0300 UTC 14 October. This is the first name that appears on the Central North Pacific storm names list number four, the first time this particular list has been used. A cold front had pushed south of 30N between 150W and 170W, weakening the subtropical ridge across much of the Central North Pacific. This allowed Ana to gain latitude as deep steering flow pushed this system toward the west. CPHC issued its first tropical storm watch for the main Hawaiian Islands, initially for just the Big Island, at 0300 UTC 16 October. The Honolulu weather forecast office concurrently issued its first flash flood watch, also for the Big Island. The tropical storm watch was expanded to include Maui County leeward waters at 2100 UTC 16 October. Forecast track guidance at that time showed a strong possibility of Ana crossing the island chain sometime during the coming weekend. The first tropical storm warning was issued, initially for Big Island southeast and leeward waters, at 0300 17 October.

Tropical Storm Ana continued to strengthen as it moved toward the west northwest and CPHC upgraded this system to Hurricane Ana at 2100 UTC 17 October. The tropical storm watch was concurrently expanded to include all Hawaiian Islands and coastal waters. Forecast track guidance was beginning to show an increased likelihood of Ana passing just south of the islands. Outer rain bands began moving across the Big Island by 0600 UTC 18 October, starting an event that would drop slightly less than 12 inches of rainfall across parts of the main Hawaiian Islands over the next 48 hours. Hurricane Ana reached its peak intensity of 75 knots at 0600 UTC 18 October when it was about 120 miles southwest of the Big Island. Tropical storm warnings were shifted westward as Ana moved along its track just south of the islands, with Kauai County placed under a tropical storm warning at 0300 UTC 19 October. Portions of the Papahanaumokuakea National Marine Monument, to the west of Kauai, were placed under a hurricane watch at 0900 UTC 19 October. By 0600 UTC 20 October, Ana, now weakened to a tropical storm, had passed west of the main Hawaiian Islands, coming within about 60 miles of the island of Niihau in Kauai County. All watches and warnings for the main Hawaiian Islands were cancelled at 0900 UTC 20 October, while the hurricane watch for the National Marine Monument west of Kauai

remained until 0300 UTC 21 October. The last tropical storm warning for this area was cancelled at 2100 UTC 23 October.

Tropical Storm Ana reached the westernmost point of its track at 0600 UTC 24 October as it rounded the western flank of the weakened subtropical ridge and began to be nudged eastward by a cold front digging south of 30N just east of the dateline. However, crossing anomalously warm water, Ana began to rapidly reorganize and strengthen. (Compare the Sea Surface Temperature (SST) Analysis and SST Anomalies in Figures 1 and 2, respectively, with the best track in Figure 3 for details.) Ana defied steadily increasing post-recurve shear long enough to reach hurricane strength again at 0300 UTC 25 October, displaying its best organization and eye structure at 0600 UTC, as seen in Figure 4. However, increasing forward speed and shear soon took its toll, causing Ana to weaken once again to a tropical storm by 0300 UTC 26 October as it passed north of the belt of anomalously warm water. Extratropical transition then set in quickly as this system began to open up and become less symmetrical. The CPHC issued its last bulletin at 1500 UTC 26 October as Ana completed transition to an extratropical storm low. Ana set a Central North Pacific basin record for a home-grown system, lasting nearly two weeks and leaving a track length consisting of over 50 best track points.

METEOROLOGICAL STATISTICS

The best track for Ana is listed in Table 1 and illustrated in Figure 3. Observations of Ana included subjective satellite-based Dvorak technique intensity estimates from the Tropical Analysis and Forecast Branch (TAFB), the Satellite Analysis Branch (SAB), the CPHC, and the Joint Typhoon Warning Center (JTWC), and objective Advanced Dvorak Technique (ADT) estimates from the Cooperative Institute for Meteorological Satellite Studies/University of Wisconsin-Madison. Data and imagery from NOAA polar-orbiting satellites including the Advanced Microwave Sounding Unit (AMSU), the NASA Tropical Rainfall Measuring Mission (TRMM), the European Space Agency's Advanced Scatterometer (ASCAT), and Defense Meteorological Satellite Program (DMSP) satellites, among others, were also useful in constructing the best track of Ana.

The Kauai (PHLI) WSR-88D Doppler radar was used to provide a positional fix for Ana at 0600 UTC 19 October. Also, the Molokai (PHMO) WSR-88D Doppler radar derived storm total rainfall for the period 17-20 October can be seen in Figure 5. Air Force Reserve aircraft kindly provided reconnaissance data during the period of closest approach to the main Hawaiian Islands, 18 – 20 October.

We have two Local Storm Reports (LSRs) within the Honolulu Weather Forecast Office (WFO) archive associated with Hurricane Ana, both referencing rainfall effects. The first, issued at 1730 UTC 18 October, described the closure of the main highway through Kawa Flats, on the Big Island, due to high water. The second, issued at 2340 UTC 19 October, described the closure of Kona Street near Ala Moana Mall in Honolulu due to "knee high water."

WFO Honolulu issued a Public Information Statement at 0645 UTC 20 October listing total accumulated rainfall for Ana as of that time. Ana was west of 161W by this time, so these rainfall amounts could be considered storm totals. While all the totals are listed in Table 4, some notable ones are those in excess of 11 inches found on Oahu and the Big Island. Just over six inches fell over Mount Waialeale on Kauai, while over three inches fell across portions of Maui County. Figure 5, mentioned above, shows

how close the swath of much heavier rainfall was to the islands. A track change of just 20 miles may have doubled recorded rainfall.

Hurricane Ana passed just far enough south of the main Hawaiian Islands to keep the 34 knot wind radius offshore, except anecdotally across southern portions of Niihau as mentioned in the next section. There were no tropical storm force winds officially recorded across the state.

CASUALTY AND DAMAGE STATISTICS

There were no real-time reports of wind damage across the main Hawaiian Islands as a result of Hurricane Ana. However, an anecdotal wind damage report was phoned in to the Lihue Data Collection Office (DCO) about a month after the event. According to that station's shift log entry of 2031 UTC 18 November, Keith Robinson (Half-owner of Niihau Island and Robinson Enterprises) called in to discuss a post Tropical Storm damage assessment for the southern portion of Niihau. He was able to tour the southernmost area of that island (South-Point and windward areas along the coast and up to about a half mile inland) and reported extensive vegetation damage and tree top levelling "with an estimated Beaufort Wind Scale range of 40-50 mph." The log entry also states that Mr. Robinson visited the same area about a week before Ana passed and that none of the damage was evident at that time. While this report lacks the veracity of an official observation by a government observer, trained weather spotter or first-responder, it is consistent with the wind conditions expected within the tropical storm warning in effect for Kauai County.

There were no recorded casualties associated with Hurricane Ana.

FORECAST AND WARNING CRITIQUE

A verification of CPHC official track forecasts for Ana is given in Table 2. With 54 best track points spanning almost two weeks, Hurricane Ana entered the record books for continuous track length in the Central North Pacific basin. This record length likely contributed to the finding that CPHC forecast errors for this system were smaller than the floating five-year average at all tau, allowing forecasters to more easily determine which guidance was most helpful and then adjust accordingly. Ana had a long recurving track essentially across open water, unlike the earlier Iselle which deteriorated significantly after impacting the Big Island. Future researchers may explore the significance of the westward track turn and slowing of Ana after passing the Big Island, possibly attributing this change to local island effects. However, an inspection of the best track in Figure 3 shows that Ana made two similar westward jogs, including just before final recurvature far west of the islands. In general, CPHC track forecasts were better than GFDL and the Beta and Advection models. European and consensus models had less track error. Interestingly, only EGRI outperformed CPHC at tau 120, while only consensus and GFS outperformed CPHC at tau 12.

Several CPHC hurricane specialists anecdotally mentioned during this writing that consensus track guidance was too far to the left during Ana's approach to the main Hawaiian Islands as a hurricane. As a result, this group asserted that their forecast tracks were more accurate than consensus track guidance during this critical period in spite of less error with consensus track guidance overall. To test

this, a visual comparison of the consistently used consensus model, TVCN, with the official track forecasts and the best track within ATCF from 0000 UTC 17 October through 0000 UTC 20 October was performed. From 0000 UTC through 1200 UTC 17 October (Figure 6), the official track and consensus guidance closely coincided, with both closely following the actual best track through its gradual curve increasingly to the north through that time. However, possibly sensing a future Ana turn to the west, consensus track guidance very noticeably flipped to the left of the official track forecast and the actual best track at 0000 UTC 18 October (Figure 7). Consensus track guidance through tau 48 then remained consistently to the left of the official track through 0000 UTC 20 October (except for one forecast cycle at 1800 UTC 18 October). Ana made its pronounced turn almost due west at 1800 UTC 19 October as it was moving west of the main Hawaiian Islands. Based on this visual comparison, it seems that in the period between the consensus track guidance flip to the left and Ana's actual turn to the west (when Ana was closest to the islands, from 0000 UTC 18 October through 1200 UTC 19 October) the assertion of the CPHC forecasters is correct. However, since consensus track guidance accuracy was eventually aided by Ana's actual turn to the west after 1800 UTC 19 October (Figure 8), the short-term CPHC advantage in track accuracy over consensus track guidance was cancelled out in the longer run.

A verification of CPHC official intensity forecasts for Ana is given in Table 3. In short, CPHC outperformed all intensity guidance at all tau. CPHC also improved its own overall intensity statistics by besting its floating five-year average intensity errors at all tau. For Ana, intensity guidance was biased high, likely in response to the abundance of warm water around and especially north through northwest of the main Hawaiian Islands.

As Ana approached the main Hawaiian Islands, it was well-behaved, developing and moving in a manner consistent with conceptual models. This allowed CPHC forecasters to issue timely watches and warnings as the threat to the islands unfolded. In the end, Ana essentially missed the islands, with tropical storm force winds and the heaviest rainfall remaining offshore. However, its proximity and track roughly parallel to the island chain necessitated a rigorous series of tropical storm watches and warnings, mirrored by associated local watches and warnings from the Honolulu WFO. The Wind Speed Probabilities (PWS) product proved quite valuable here, with onset times for 10% probabilities of 34 knot wind speeds used to determine whether and when to issue tropical storm watches and warnings in given locations. Local flood warnings verified as heavy rainfall closed roads on Oahu and the Big Island. Once again, Figure 5 shows how close the swath of devastatingly heavy rainfall was.

This system was well-anticipated, with the Tropical Weather Outlook (TWO) of 0000 UTC 12 October initially assigning a 48-hour development probability of 20%. Subsequent increases in 48-hour development probability to 50%, 60%, and 80% in TWO's issued 12, 30 and 36 hours later, respectively, show that CPHC was not taken by surprise by this system, in spite of its rather late-season initialization and development.

Table 1. Best track for Hurricane Ana, 13 – 26 October 2014.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
13 / 0600	11.8	140.9	1008	25	low
13 / 1200	12.1	141.6	1008	25	"
13 / 1800	12.4	142.0	1007	30	tropical depression
14 / 0000	12.7	142.3	1005	35	tropical storm
14 / 0600	13.0	142.7	1003	40	"
14 / 1200	13.5	143.3	1000	45	"
14 / 1800	13.8	143.9	996	55	“
15 / 0000	14.0	144.6	996	55	“
15 / 0600	14.1	145.3	994	60	“
15 / 1200	14.2	146.1	994	60	“
15 / 1800	14.3	147.0	994	60	“
16 / 0000	14.1	148.0	998	55	“
16 / 0600	14.0	148.9	1000	50	“
16 / 1200	14.0	149.7	1000	50	“
16 / 1800	14.1	150.5	1000	50	“
17 / 0000	14.4	151.4	1000	50	“
17 / 0600	14.9	152.5	998	55	“
17 / 1200	15.4	153.7	992	60	“
17 / 1800	16.0	154.8	990	65	hurricane
18 / 0000	16.6	156.2	989	70	hurricane
18 / 0600	17.5	157.0	985	75	hurricane
18 / 1200	18.2	157.7	986	70	hurricane
18 / 1800	19.0	158.5	988	70	hurricane
19 / 0000	19.6	158.9	989	70	hurricane
19 / 0600	20.1	159.2	989	70	hurricane
19 / 1200	20.6	159.6	989	70	hurricane

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
19 / 1800	20.7	160.2	992	65	hurricane
20 / 0000	20.7	160.9	994	60	tropical storm
20 / 0600	20.7	161.8	995	60	"
20 / 1200	20.7	162.7	995	60	"
20 / 1800	20.6	163.4	996	55	"
21 / 0000	20.5	164.0	998	50	"
21 / 0600	20.7	164.7	999	45	"
21 / 1200	20.8	165.4	1002	40	"
21 / 1800	20.9	165.7	1005	35	"
22 / 0000	21.6	166.1	1005	35	"
22 / 0600	22.0	166.8	1005	35	"
22 / 1200	22.6	167.1	1005	35	"
22 / 1800	23.4	167.3	1005	35	"
23 / 0000	24.4	167.7	1005	35	"
23 / 0600	25.5	168.2	1002	40	"
23 / 1200	26.1	168.9	998	45	"
23 / 1800	26.7	169.5	999	45	"
24 / 0000	27.1	169.9	1000	45	"
24 / 0600	27.6	170.2	1000	45	"
24 / 1200	28.2	169.9	999	50	"
24 / 1800	29.1	169.4	996	55	"
25 / 0000	30.2	168.5	988	65	hurricane
25 / 0600	31.7	166.8	987	65	hurricane
25 / 1200	33.4	164.6	987	65	hurricane
25 / 1800	35.2	162.2	987	65	hurricane
26 / 0000	37.0	159.1	988	60	tropical storm
26 / 0600	38.9	154.9	989	55	"
26 / 1200	41.2	150.2	992	50	extratropical

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
18 / 0600	17.5	157.0	985	75	maximum wind and minimum pressure

Table 2. Homogeneous comparison of selected track forecast guidance models (in n mi) for Hurricane Ana, 13 – 26 October 2014. Errors smaller than the CPHC official forecast are shown in boldface type.

Model ID	Forecast Period (h)						
	12	24	36	48	72	96	120
OFCL	27.7	49.2	62.8	74.1	126.7	143.8	155.8
OCD5	46.4	100.8	155.9	190.1	203.3	201.1	171.3
GFSI	**27.3**	**39.2**	**48.2**	**60.8**	**96.7**	**127.3**	197.4
GHMI	28.2	50.5	69.9	89.5	149.6	235.7	365.7
HWFI	28.6	**46.7**	**58.7**	**73.0**	**119.6**	148.9	190.1
EGRI	29.0	**46.2**	**60.9**	77.2	**98.7**	**112.2**	**151.1**
EMXI	34.7	45.4	91.5	-	-	-	-
CMCI	37.6	63.0	101.9	-	-	-	-
TCON	**24.4**	**38.4**	**50.4**	**60.9**	**95.0**	**118.0**	168.2
TVCA/TVCE	**24.8**	**40.1**	**52.7**	**64.9**	**92.4**	**114.7**	164.5
AEMI	27.9	**46.5**	**61.0**	**71.6**	**109.1**	144.9	188.3
BAMS	46.1	86.6	120.6	153.1	212.6	242.5	252.7
BAMM	31.7	53.5	69.9	79.6	**98.8**	**113.3**	182.1
BAMD	34.4	55.9	75.2	88.1	**122.1**	185.2	306.8
Forecasts	48	46	44	42	38	34	31

Table 3. Homogeneous comparison of selected intensity forecast guidance models (in kt) for Hurricane Ana, 13 – 26 October 2014. Errors smaller than the CPHC official forecast are shown in boldface type.

Model ID	Forecast Period (h)						
	12	24	36	48	72	96	120
OFCL	5.0	7.8	10.7	12.9	15.3	13.2	11.6
OCD5	8.9	14.0	19.2	17.5	25.7	23.6	14.8
HWFI	6.1	9.4	11.4	14.9	19.0	20.7	18.5
GHMI	5.6	9.9	15.6	19.1	28.4	31.9	36.5
DSHP	5.4	9.5	13.2	15.8	18.1	19.6	14.0
LGEM	5.5	9.5	13.0	15.3	18.2	20.3	15.2
ICON	5.1	8.1	11.3	14.2	18.1	19.8	18.1
IVCN	5.1	8.1	11.3	14.2	18.1	19.8	18.1
Forecasts	48	46	44	42	38	34	31

Figure 1. National Weather Service Environmental Modeling Center Sea Surface Temperature Analysis for 24 October 2014.

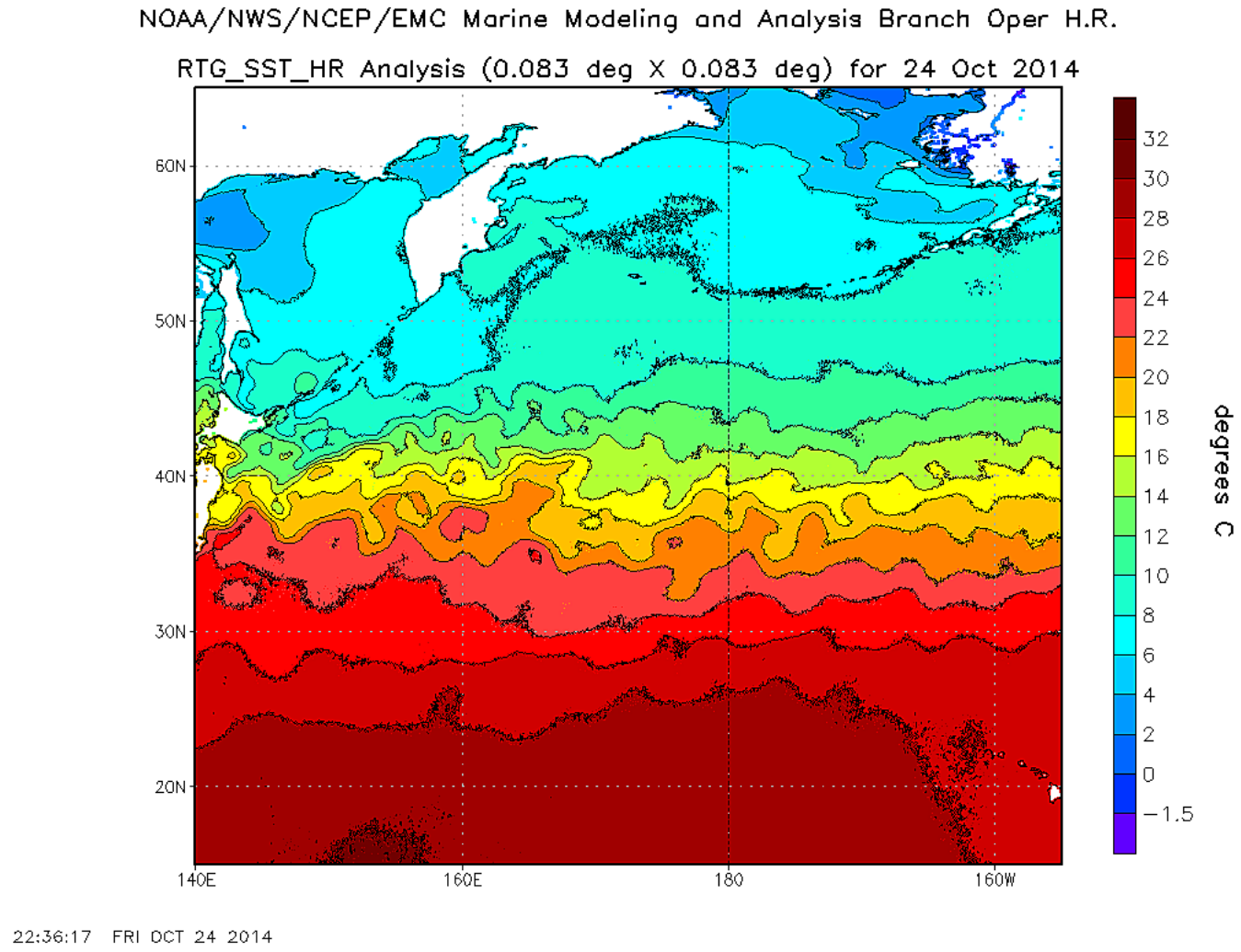


Figure 2. National Weather Service Environmental Modeling Center Sea Surface Temperature Anomalies for 24 October 2014.

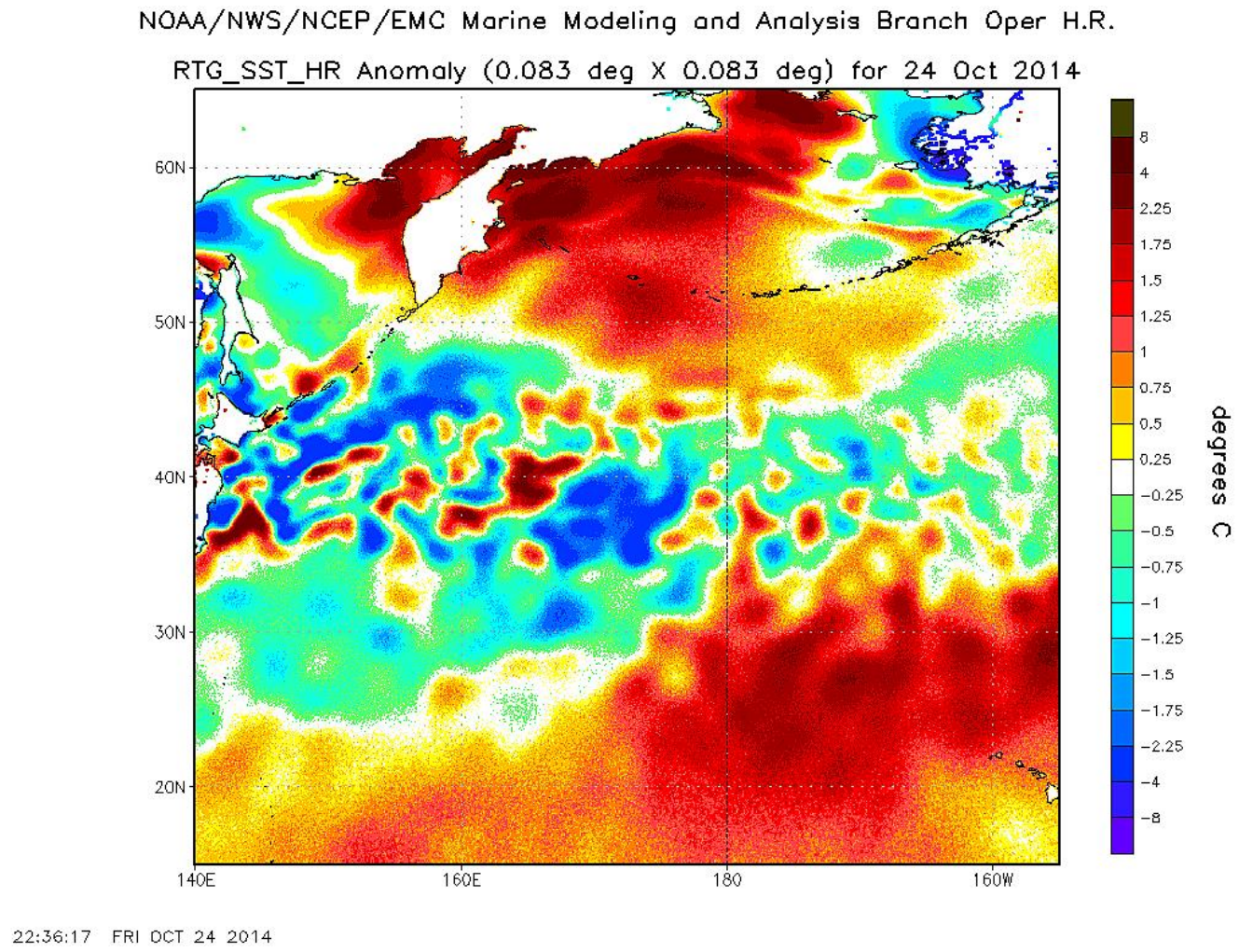


Figure 3. Final Best Track for Hurricane Ana, 13 – 26 October 2014, representing the longest tropical cyclone track ever recorded for a system originating within the Central North Pacific by the Central Pacific Hurricane Center.

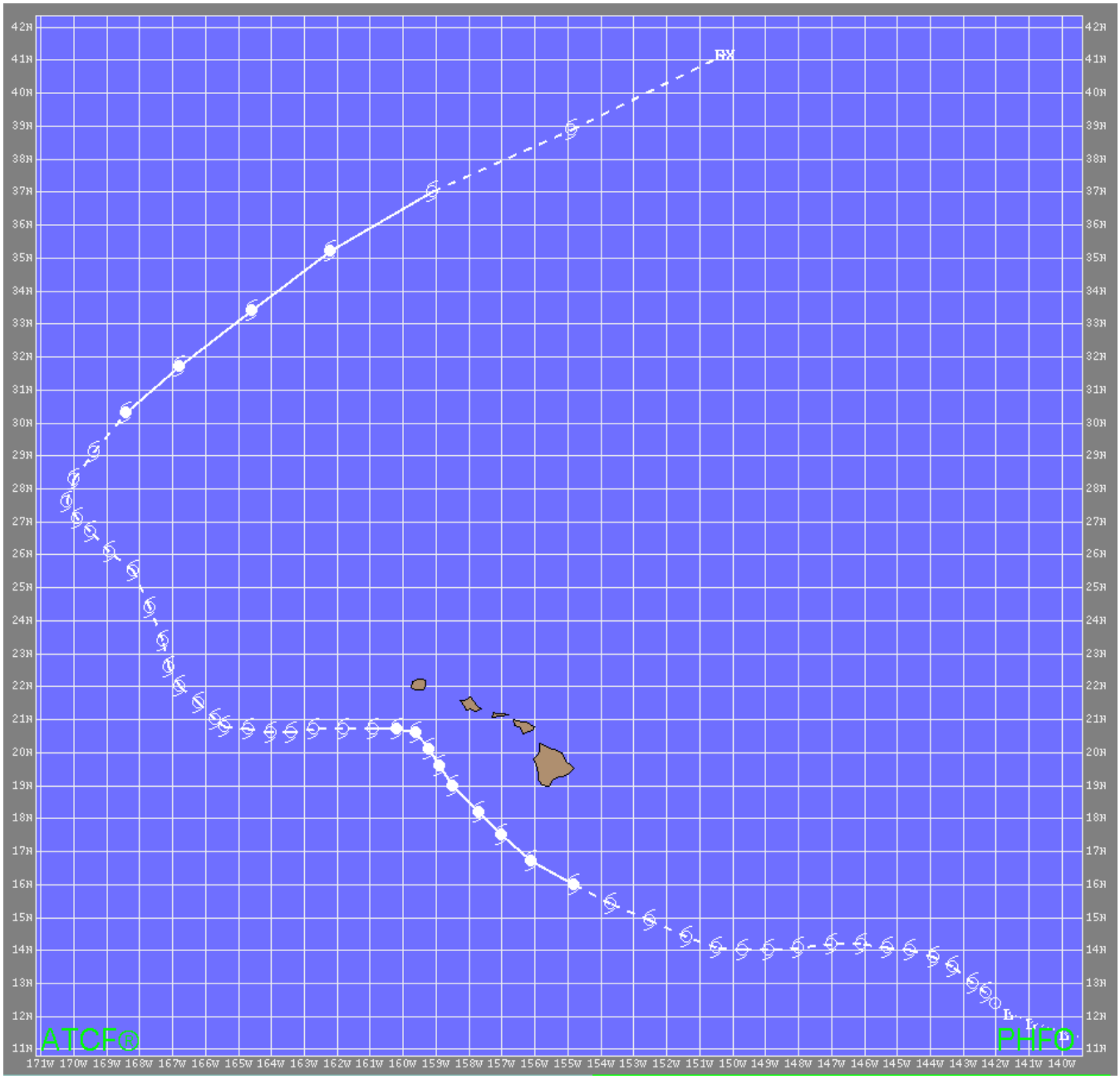


Figure 4. GOES-15 enhanced infrared image of Ana at 0600 UTC, 25 October 2014, as it rebuilds to hurricane strength after recurvature within anomalously warm water northwest of the main Hawaiian Islands.

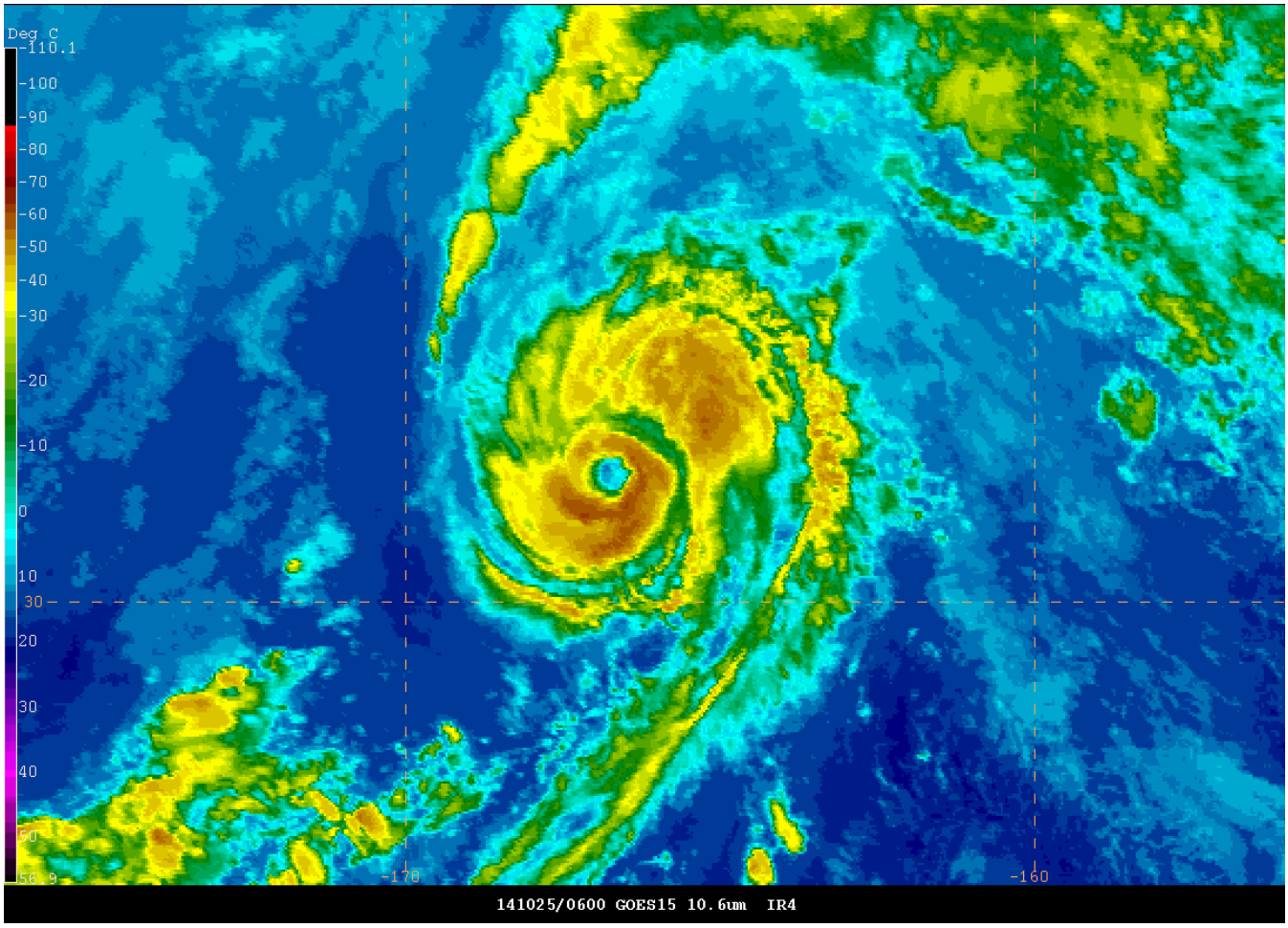


Figure 5. Storm total rainfall accumulation derived from Molokai (PHMO) WSR-88D Doppler radar from 2015 UTC October 17 through 1339 UTC October 20. Of note is the 15+ total rainfall area as close as 20 miles southwest of Oahu during this period.

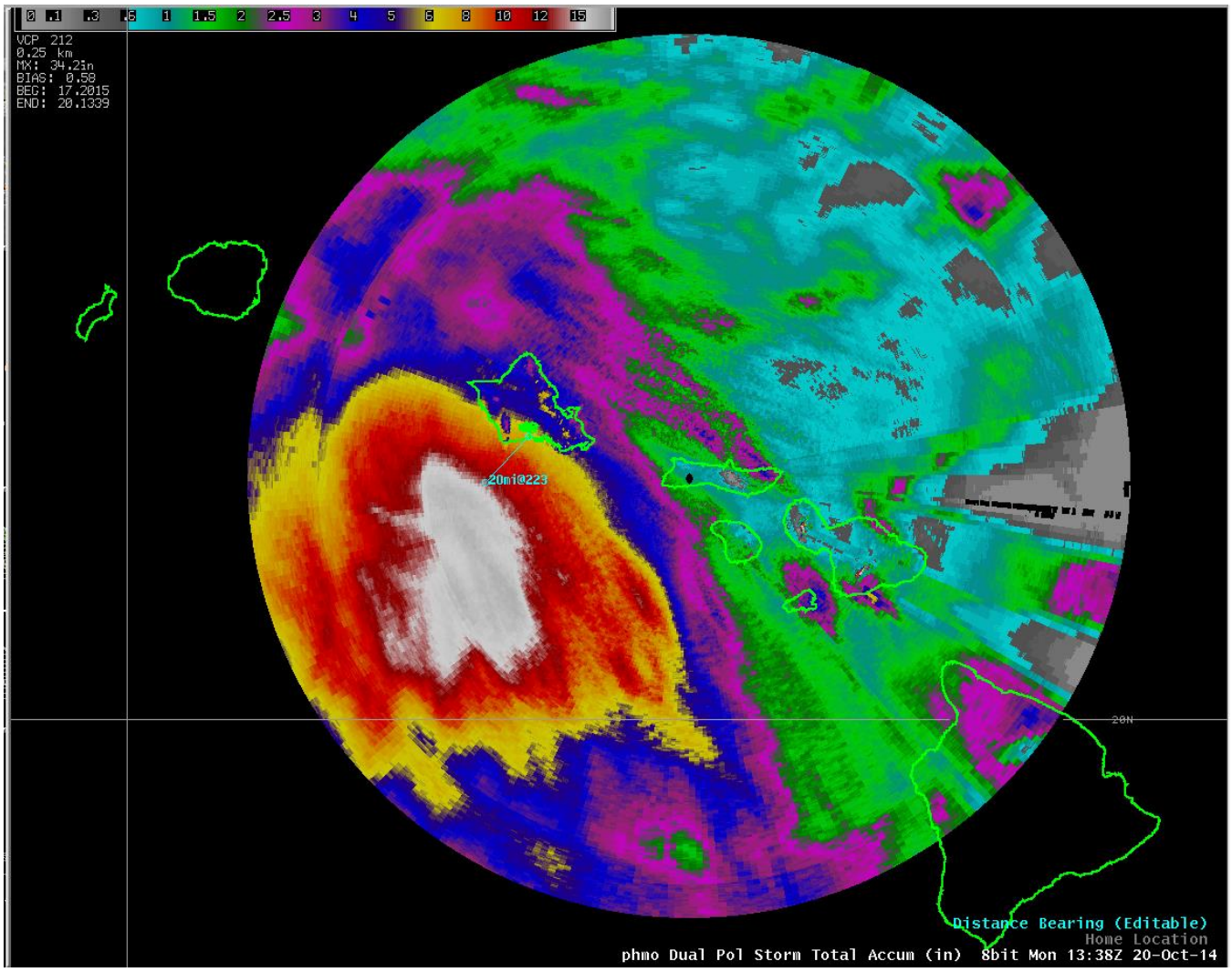


Table 4. Storm total rainfall accumulations as of 0645 UTC 20 October.

KAUAI		
/WLLH1/	MOUNT WAIALEALE RAINGAGE	6.04
/KLOH1/	KILOHANA RG - USGS	4.88
/WLDH1/	WAILUA DITCH - USGS	3.83
/WNHH1/	PH WAINIHA	2.89
/KPIH1/	KAPAHI	1.91
/WLGH1/	WAIALAE RG - USGS	1.81
/WUHH1/	WAILUA UH EXP STN	1.61
/KHEH1/	KALAHEO	1.54
/OMAH1/	OMAO	1.39
/WKRH1/	WAIAKOALI - USGS	1.29
/LIHH1/	LIHUE VRTY STA	1.19
/KOKH1/	KOKEE	1.18
/MCRH1/	MOHIHI CROSSING - USGS	1.04
/POIH1/	POIPU	0.67
/HLI /	LIHUE AIRPORT	0.53
/HNPH1/	HANAPEPE	0.52
OAHU		
/MNLH1/	MANOA LYON ARBO	11.05
/PMHH1/	POAMOHO RG 1 - USGS	7.47
/MOGH1/	MOANALUA - USGS - USGS	6.89
/WPPH1/	WAIHEE PUMP	6.68
/NUUH1/	NUUANU UPPER	6.41
/TNLH1/	TUNNEL RG - USGS	6.12
/KNRH1/	KAHANA STREAM RG - USGS	5.98
/STVH1/	ST. STEPHENS SEMINARY	5.96
/LULH1/	LULUKU	5.79
/PNSH1/	PUNALUU STREAM - USGS	5.77
/KUNH1/	KUNIA SUBSTA	5.69
/MOAH1/	MOANALUA STREAM	5.56
/MAUH1/	MAUNAWILI	5.51
/LUAH1/	LUALUALEI	5.21
/PFSH1/	PALOLO FIRE STN	5.15
/NIUH1/	NIU VALLEY	4.97
/PPRH1/	PUPUKEA RD RG - USGS	4.77
/PACH1/	PALISADES RES	4.75
/HNL /	HONOLULU AIRPORT	4.72
/WAWH1/	WAIAWA CF	4.71
/PUNH1/	PUNALUU PUMP	4.65
/KMRH1/	KAMANANUI RG - USGS	4.64
/PECH1/	WAIPIO HEIGHTS	4.64
/WAFH1/	WHEELER AAF	4.59
/ALOH1/	ALOHA TOWER	4.54
/WHSH1/	WAIAHOLE STREAM - USGS	4.43
/OFSH1/	OLOMANA FIRE STN	4.40
/HJR /	KALAELOA AIRPORT	4.35
/POAH1/	POAMOHO EXP FRM	4.24
/HAKH1/	HAKIPUU MAUKA	4.23
/HAJH1/	HAWAII KAI G.C.	4.10
/WMLH1/	WAIMANALO NONOKIO	4.08
/KAHH1/	KAHUKU	3.94
/MKHH1/	MAKAHA STREAM - USGS	3.90
/KMHH1/	KAMEHAME	3.46
/WAIH1/	WAIANAE KAWIWI	3.18
/BELH1/	BELLOWS AFS	3.04
/WBHH1/	WAIANAE BOAT HARBOR	2.91
/HNG /	KANEOHE MCBH	2.37

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MOLOKAI
/PAFH1/ PUU ALII                                3.22
/KACH1/ KAUNAKAKAI MAUKA                        1.08

KAHOOLAWE
/KRTH1/ KAHOOLAWE                               3.25

MAUI
/KLFH1/ KULA FOREST                             3.54
/PKKH1/ PUU KUKUI - USGS                        3.08
/KPNH1/ KEPUNI - USGS                           2.45
/ULUH1/ ULUPALAKUA RANCH                        1.92
/PUKH1/ PUKALANI                                0.79
/KBSH1/ KULA BRANCH STN                         0.76
/KHKH1/ KAHAKULOA                               0.75
/KHIH1/ KIHEI NO. 2                             0.66
/WUKH1/ WAILUKU                                 0.53
/HOG  / KAHULUI AIRPORT                         0.44

HAWAII
/KKUH1/ KEAUMO                                 11.67
/KNWH1/ KULANI NWR                              8.61
/KAYH1/ KAPAPALA RCH                            7.66
/HTO  / HILO AIRPORT                            5.34
/MLBH1/ MAUNA LOA SLOPE OBS                     5.32
/WEXH1/ WAIAKEA EXP STN                         5.31
/SDQH1/ SADDLE ROAD QUARRY - USGS               5.21
/PKLH1/ PUA AKALA                               4.75
/PPLH1/ PAHALA                                  4.59
/PIIH1/ PIIHONUA KPUA                           4.40
/WKAH1/ WAIAKEA-UKA                             4.29
/PHAH1/ PAHOA BEACON                            3.98
/MTVH1/ MOUNTAIN VIEW                           3.97
/KLEH1/ KEALAKEKUA T.F.                         2.73
/SOPH1/ SOUTH POINT                             2.19
/HAUH1/ HONAUNAU NO. 2                          2.03
/KWSH1/ KAWAINUI STREAM - USGS                  1.87
/HNKH1/ HONOKAA                                 1.60
/WHIH1/ WAIKII                                  1.53
/KUUH1/ KAMUELA UPPER                           1.45
/LPHH1/ LAUPAHOEHOE P.D.                        1.32
/WPLH1/ WAIMEA PLAIN                            1.28
/KMUH1/ KAMUELA 1                               1.18
/KASH1/ KAHUA RANCH HQTRS                       1.12
/ILDH1/ ISLAND DAIRY                            1.07
/HKO  / KONA INTL AIRPORT                       0.99
/KIRH1/ KIHOLO RG - USGS                        0.97
/UPLH1/ UPOLU AIRPORT                           0.74
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Figure 6. Comparison of 1200 UTC 17 October TVCN consensus guidance (brown), official forecast (blue) and best track (white). Note close agreement between TVCN and official forecast tracks, especially through 24 hours. TVCN and official track errors then appear to cancel each other out from 36 through 72 hours.

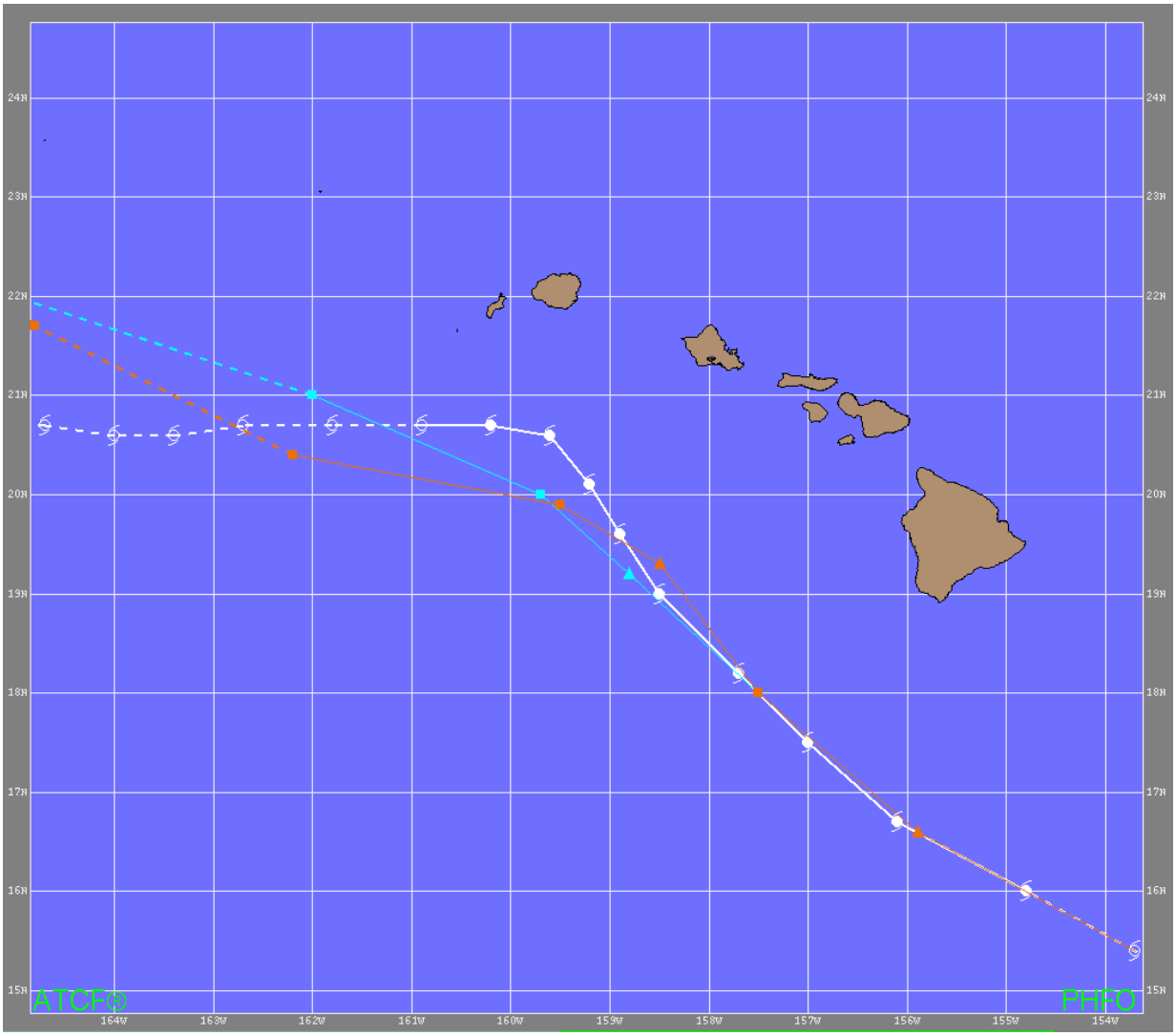

Figure 7. Comparison of 0000 UTC 18 October TVCN consensus guidance (brown), official forecast (blue) and best track (white). Note that TVCN track guidance flips to the left, with the official forecast now showing less track error at all tau. This trend persists until 1800 UTC 19 October.

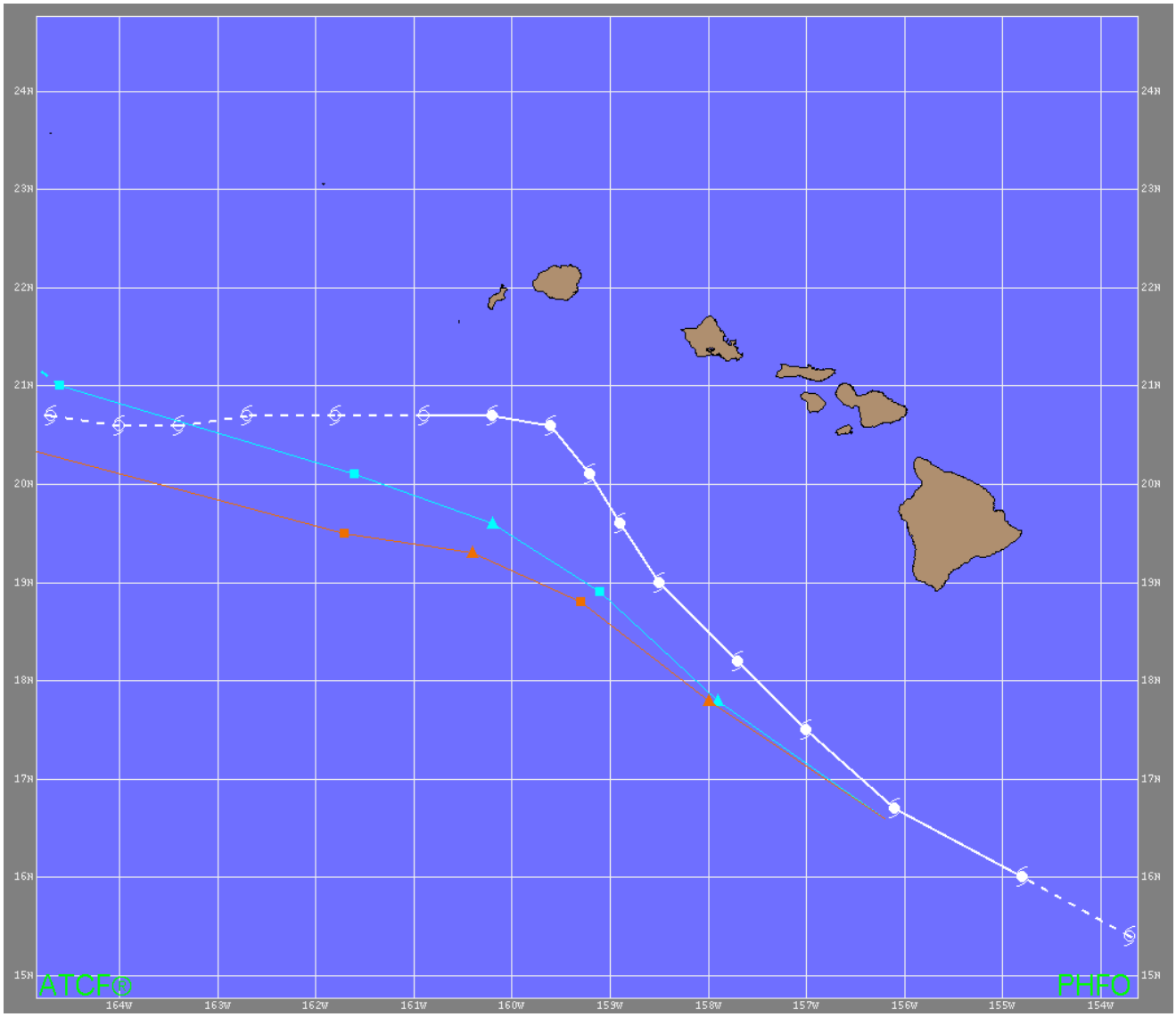

Figure 8. Comparison of 1800 UTC 19 October TVCN consensus guidance (brown), official forecast (blue) and best track (white). Ana has now turned west, and TVCN track guidance now has less track error.