From: SMTP%"ewing02@ewing.ldgo.columbia.edu" 30-AUG-1995 04:37:44.71
To: b0208
CC:
Subj: OBS deployment

Dear Yosio, Kirk and Tan-Kin:

Because of typhoon Kent, we are late on the survey schedule, thus I am thinking about cutting some of the MCS lines short. I will also shorten the MCS/OBS Line 16 somewhat (ask Ewing to turn toward Line 16 at 123 d 30' E).

I would suggest to deploy only one OBS (#26) to the east of Gagua Ridge (deploy it in the bathymetric low around 123 d 12' E). Put the rest of the 6 OBSs in the West Gagua Basin (for example: put #27 at the place where #28 is located, put #28 at 122d 27' E, put #29 at 122d 12' E, put #30 at 121d 57' E, and put #31 at 121d 42' E). If we do this, the distance between OBSs #31 and #32 will be quite large. But since there is steep slope between these two OBSs, I do not know if OBS can sit well on a steep slope. Or, maybe you can add one more OBS between #31 and #32 (at 2000 m depth the slope is not as steep) to image the volcanic arc better. What do you think?

We will work on the MCS recording system and streamer on August 30th. Since Ewing can accomodate the OBS shooting schedule, I would like to ask T.K. to contact Dr. Yeh of the Institute of Earth Sciences, Academia Sinica to set up a working schedule with him. Once the land stations are in places and OBSs recording windows are programmed (depending on when Ocean Researcher I can come out of Chilung harbor), I will get the Ewing to the starting point of Line 9. I suggest that if possible, Ocean Researcher I should be ready to leave Chilung in

Line 9

To: Ocean Researcher I FAX: 00-872-1350653

Date: September 2, 1995

Dear Yosio, Kirk and Tan-Kin:

Thanks for your fax of the survey tracks and time table. After discussing with Don and Neil, we revised the ship survey tracks with empahsizing on the area off southeastern Taiwan where ODP drill sites could be selected.

Following is a list of the waypoint locations starting from #16 to #32. Waypoint #32 is the same as waypoint #25 of the pre-cruise track plan. Then we are back to the planned survey track afterwards. The estimated arrival time (local time) at each waypoint is for reference only. You probably can come up with a more accurate time table. Main concerns are the starting and ending time for the two MCS, OBS and Land Recording profiles (Line 23 and Lines 30-33).

Let us know if this survey track plan is OK. Please also send my regards to Dr. Chao-Shing Lee.

Cheers,
Char-Shine, Don and Neil

16*.	24 09.38′ N 121 42′ E 24.15633° 121.700	Begin of Line 16 at 14:01 (GMT) 09/02: MCS, OBS, LAND RECORDING, 40 second shot interval
	* Waypoint #10 of planned ship track	
17*.	23 59.7′ N 123 00′ E	End of Line 16 at 1300 (local) 09/03 23.995° 123.000°
	* Waypoint #9 of planned ship track. This location is the end of the first sea-land profile of planned ship track Line 9.	
18.	23 45′ N 123 25′ E	Begin of Line 18 at 2000 (local) 09/03 23.75° 123.41667° speed= 4.5 knots
19.	22 20′ N 123 25′ E	Begin of Line 19 at 1500 (local) 09/04 22.3333° 123.41667° speed= 4.5 knots
20.	22 20′ N 120 55′ E	Begin of Line 20 at 0100 (local) 09/06 22.3333° 120.91667°
21.	22 32′ N 121 00′ E	End of Line 20 at 0400 (local) 09/06 22.5333° 121.0000°
22.	22 32′ N 121 20′ E	End of Line 21 at 0800 (local) 09/06 22.5333° 121.3333°
23*.	23 2.72′ N 121 20′ E	End of Line 22 at 1300 (local) 09/06 23.04533° 121.3333° Begin of Line 23: MCS, OBS, Land Recording at about 1300 (local) 09/06, 40 sec. shot interval. Speed= 3.5 knots
	* Waypoint #17 of planned ship track	
24.	22 20′ N 122 45.5′ E	End of Line 23 at 1500 (local) 09/07 22.3333° 122.75833° speed= 4 knots
25.	21 51′ N 122 45.5′ E	Begin of Line 25 at 2300 (local) 09/07 21.8500° 122.75833° speed= 4.5 knots
26.	21 51′ N 120 53′ E	Begin of Line 26 at 2300 (local) 09/08 21.85° 120.8833°
27.	21 40′ N 120 53′ E	Begin of Line 27 at 0100 (local) 09/09 21.6667° 120.8833° speed= 4 knots
28.	21 40′ N 122 10′ E	Begin of Line 28 at 2000 (local) 09/09 21.6667° 122.16667°
29.	22 12′ N 122 00′ E	Begin of Line 29: MCS, OBS, Land recording at about 0200 (local) 09/10, 20 sec. shot interval. Speed= 4 knots 22.200° 122.00°
30.	22 12′ N 120 55′ E	End of Line 29 at 1800 (local) 09/10 22.200° 120.916667°
31.	21 51′ N 120 55′ E	Begin of Line 31 at 2300 (local) 09/10 21.850° 120.91667°

Waypoint 32 is the same as waypoint #25 of planned ship track, and then survey follows the originally planned ship track.

MORE INFO FOR YOUR CONSIDERATION

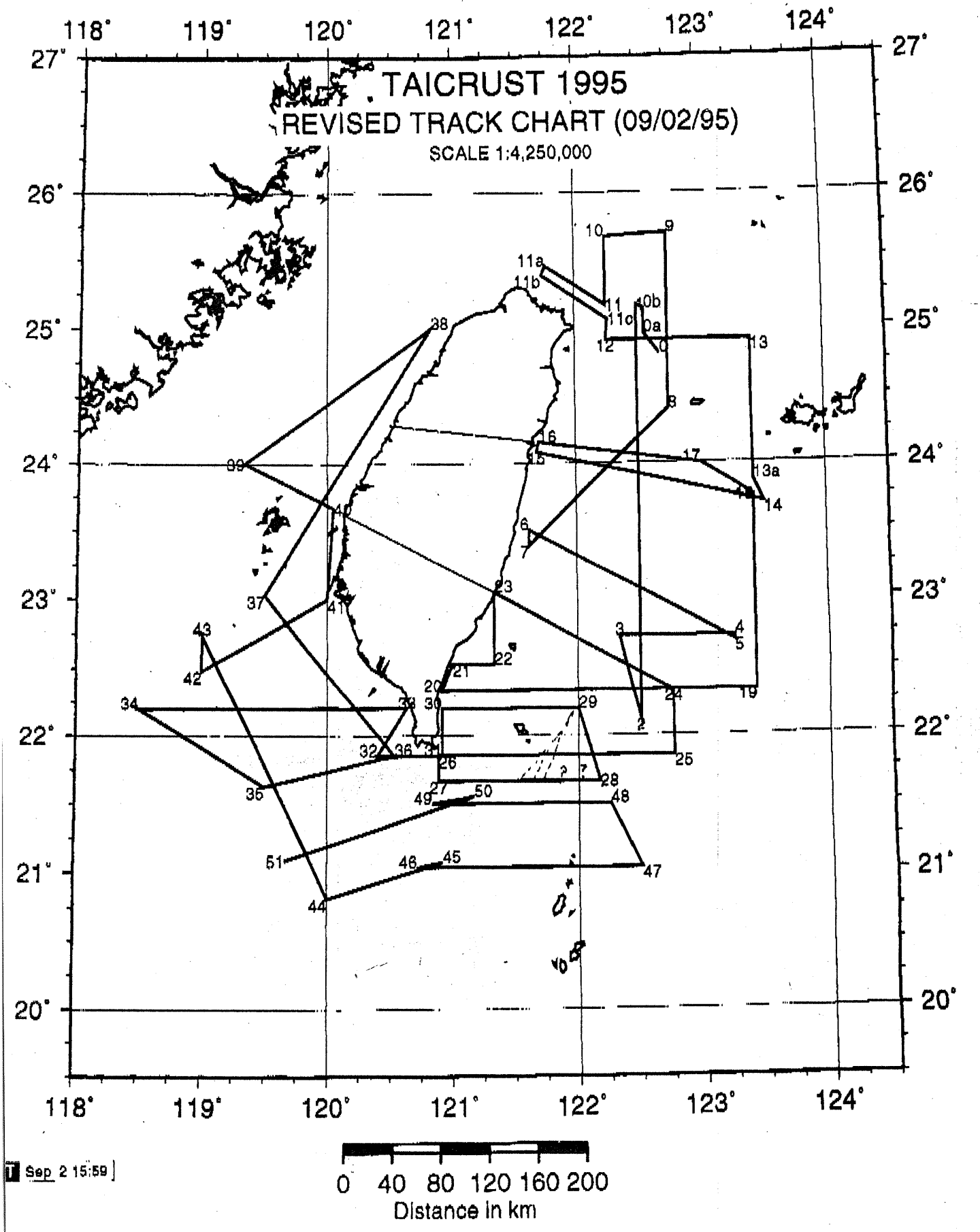
Here is some additional information regarding survey along southeast Taiwan, including an alternate track scheme for your consideration.

As you know we are running behind schedule, however, we have collected excellent data and all of our objectives in southern Taiwan are within reach, if we economize our time. I want to try to keep as much contingency time available for typhoon delays and because the last OBS line of the survey is very important for ODP objectives.. Consequently the length of our new line 27-28 (shown on the attached chart) could be shortened by as much as 6-10 hours, since this line needs only to extend as far east, i.e. across the volcanic arc, as to allow sufficient time for your OBS deployment along line 29-30 and 33-34.

From your timetable of yesterday, I see that you request 53 hours between your old waypoints of 21 and 26 (our new 24 and 29), which occur at the end of OBS/land line across south-central Taiwan and the beginning of the OBS/Land line at the southern tip of the island.

We would like to begin shooting the combined MCS/OBS line (29-30-33-34, new waypoints) at waypoint 29 as soon as you are ready. Please reply with your estimate of the earliest time at which we can begin at waypoint 29.

Thanks


TAICRUST 1995
REVISED TRACK CHART (09/02/95)
SCALE 1:4,250,000
118° 119° 120° 121° 122° 123° 124°
27° 26° 25° 24° 23° 22° 21° 20°
0 40 80 120 160 200
Distance in km

Sep 2 15:59

To: Ocean Researcher I FAX: 00-872-135-0653

Date: Sept. 8, 1995

Dear Yosio, Kirk and Tan-Kin:

Thanks for your fax and the estimated times at each new waypoints. Regarding the questions you raised, here are our answers:

1. We should have no problem to start shooting Line 29 on time. In your spread sheet, you used 4.5 knots to calculate the time needed between waypoints. Along couple profiles (especially from west to east and from south to north) we are riding the strong current which easily raises the ship's speed over ground to 6 knots or higher. We are actually considering to add another line in order not to get to WP#29 ahead of schedule.

2. You are quite right on the time for starting Line 45. We made couple mistakes in estimating the arrival time. So we shall start the first MCS-OBS line of the second OR1 leg at 01:00 09/17, not 17:00 09/16. In this case, OR1 can leave Kaohsiung at a later time (morning of Sept. 16?).

3. We used 4.5-knot speed in calculating the time needed for Line 45 since the ship will move somewhat against the current. But for Line 47 and Line 49, ship should be able to maintain a 5-knot speed over all. We also allocated more time for the turns. So after re-examine the ship tracks, here are the arrival times we come up with:

Arriving WP# 45 at 01:00 09/17
Arriving WP# 46 at 01:00 09/18
Arriving WP# 47 at 03:00 09/18
Arriving WP# 48 at 19:00 09/18
Arriving WP# 49 at 00:00 09/19
Arriving WP# 50 at 16:00 09/19.

4. For the OBS lines across the Hengchun Penisula, we thought we would shoot it as a single long profile. But based on the recording windows you set up for the OBSs, we will not be able to obtain refraction arrivals underneath the Hengchun Pesisula. Since it might be too late to change the OBS recording window for the 5 OBSs to be deployed along Line 29, depending on your deployment schedule, we would like to see some of the OBSs deployed along Line 33 to begin recording when Ewing is shooting along Line 29 so that at leaset we will have some idea about the deep crustal velocity structure across the Hengchun Penisula. To have OBSs recording shots across the Hengchun Penisula is one of the major objectives for this long onland-offshore profile (land seismometers will be deployed across the Hengchun Penisula to connect the two offshore sections into a long profile). By doing this, we will also have an opportunity to examine the offshore location of the Chao-Chou fault which is the major fault bounding the west side of the Central Range.

By the way, when will Ocean Researcher 1 meets Ewing again? If you could estimate the time and location for the two ship to be close to each other before OR1 heads back to Kaohsiung, we can deliver another data tape to you.

To: Ocean Researcher I
From: Maurice Ewing

Fax: 00-872-135-0653

Date Sept. 16, 1995, 11:00 am

Dear Kirk, Yosio, and Allen:

We received your fax, you have made the correct decision to postpone deployment of OBS.

Our schedule is not clear at this point, because of the changing weather conditions and repair work which must be carried out on streamer.

We are steaming southwest for the next 2-3 hours until we reach the area of 22 47'N 119 15', approximately 35-40 miles west-northwest of our position when we spoke yesterday. We will steam slowly north into the seas in order to add a second stretch section to streamer and weight to it's head. Streamer balancing has become a major problem, due to repair work required yesterday. The streamer heads to the surface at every opportunity. We also need to replace two noisy sections at the head.

We are allowing Joe and Chris to get a few hours sleep (they are understandably exhausted) and hope to begin work on the streamer this afternoon (2:00 to 2:30). Streamer work will likely take 5-6 hours, and possibly more if seas continue to be unfavorable.

In the best possible scenario (which changes with every weather report) we would like to begin shooting along a portion of line 43 Saturday night or very early Sunday. We would then begin Line 45 immediately following, possibly on late Sunday morning or afternoon without OBS's.

I think it is virtually impossible to forecast the weather as the tropical storm to the east of Luzon is not moving much, if at all.

Our top priorities are in the following order:

1) give people some well-deserved rest,

2) get the streamer back in working order,

3) preserve OBS's, in order to shoot line 47-49 with OBS after weather improves, which could be a few days from now

4) Shoot line 45 with MCS on our way to collect line 47-49

5) Collect some data for CPC after completing our work on the streamer.

6) Shoot Line 51 at some point after or before line 47-49, depending on weather and schedule for OBS deployment on line 47-49.

Don, Char-Shine, Neil, and Greg

To: Ocean Researcher I Fax: 00-872-135-0653
From: Maurice Ewing

Date Sept. 18, 1995, 10:00 am

Dear Allen, Yosio, and Kirk:

Amazing what a difference a few hours make.....the seas and winds are very calm this morning after being quite rough last night.

Weather/sea Prediction is virtually impossible it seems....

We have encountered problsm in controlling the depths of the streamer, however with calm seas this morning it is operating well.

I have been working on several scenarios, which have taken much time.

In the end, we will meet your schedule to begin line 47-49 at 0600 on 21 September, beginning in the east and shooting west (beginning at waypoint 50). Also, we will follow your schedule by ending our shooting at waypoint 47, 38 hours later, at 2000 on 22 September.

We will substitute the following waypoint numbers.

Old	New
50	52
49	53
48	54
47	55

It appears our weather (luck) is improving!

Don, Char-Shine, Neil, and Greg

To: Ocean Researcher I Fax: 00-872-135-0653
From: Maurice Ewing

Date Sept. 18, 1995, 9:30 ~~pm~~ pm

Dear Allen, Yosio, and Kirk:

Amazing what a difference a few hours make.....once again....it was beautiful this morning, then the wind picked up to 30 knots within 60 minutes. By noon the seas were a growing problem, although our hope continued.

We headed southward along the trench throughout the day hoping to collect a MCS line across the subduction system at a latitude of 20o 45', but the seas continued to grow, giving us little hope of acquiring decent data as we approached Typhoon Ryan.

Consequently, at 6:30 pm, we abandoned our course of 160 and began a crossing of accretionary prism, beginning at 20o 55'N 119o 52'E and extending to 21o20'N 120o58'E.

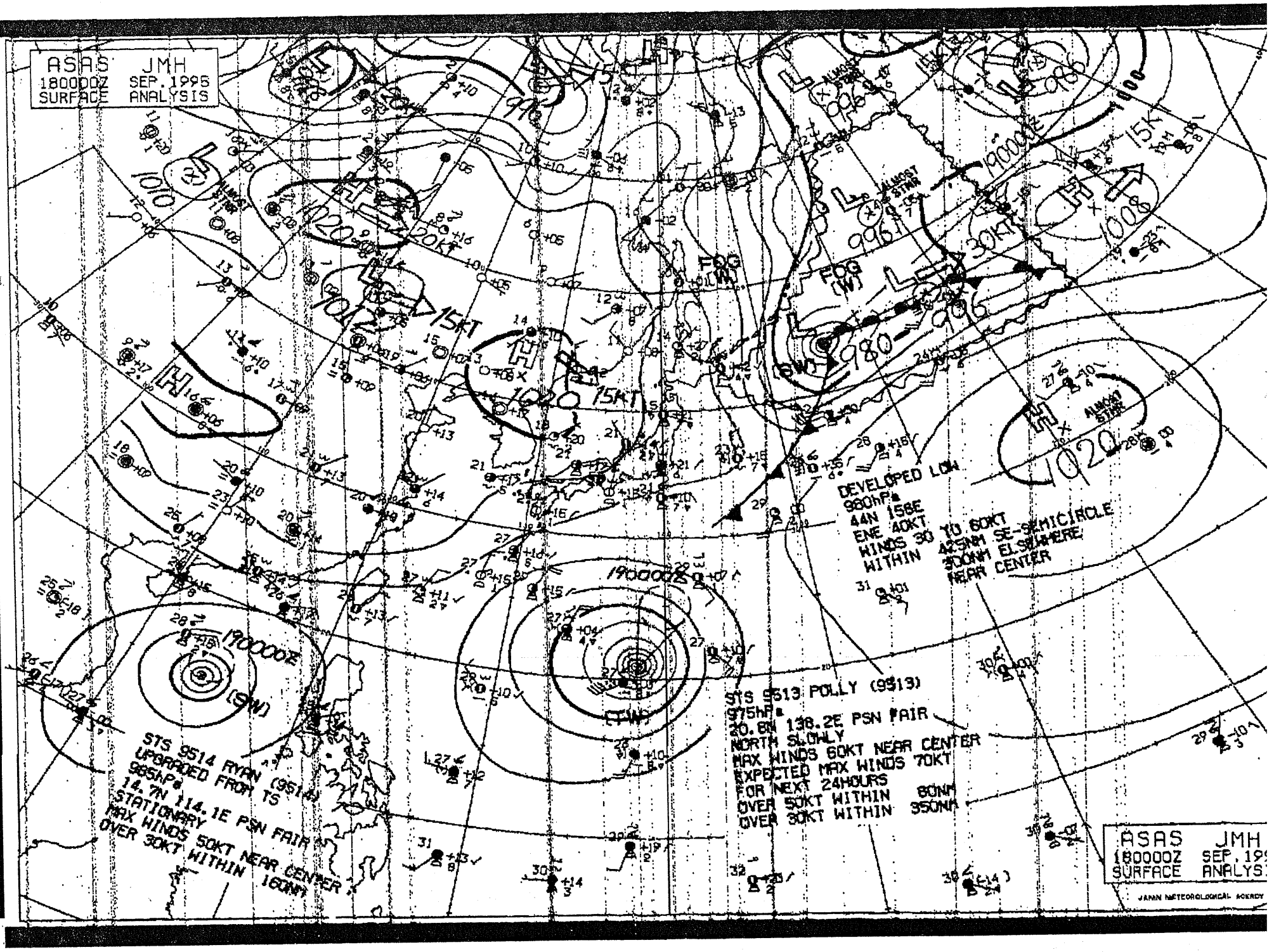
Our present position is 20o 59'N 120o 02'E with a course of 065.

We hope to complete this line, weather permitting, by noon tommorow (19 September) after that we will go wherever Typhoon Ryan is not. We have several plans but none are possible without knowledge about Ryan. We will probably stay in the area of our ending waypoint (listed above) and collect an MCS line along a latitude of 21o 15' across the northern extent of the North Luzon trough. I think anything beyond that is guesswork and depends highly on the course of Ryan. We will run the MCS/OBS line as planned, but I don't know when. We may be able to shoot it at the scheduled time, but I am fairly certain that you cannot deploy OBS in time given the weather forecast.

The seas are rough with a 25-30 knot wind out of the northeast. We are heading into the seas and are only able to make 3.5 to 4.0 knots. Wave height is 3 meters. Barometer reading is 1010 and rising slightly.

We will await future plans until tomorrow morning's weather report and fax you with more information.

Don, Char-Shine, Neil and Greg


ASAS JMH
1800DOZ SEP. 1995
SURFACE ANALYSIS
DEVELOPED LOW
980hPa
44N 158E
ENE 40KT
WINDS 30 TO 60KT
WITHIN 420NM SE-SEMICIRCLE
300NM ELSEWHERE
NEAR CENTER
STS 9513 POLLY (9513)
975hPa
20.6N 138.2E PSN FAIR
NORTH SLOWLY
MAX WINDS 60KT NEAR CENTER
EXPECTED MAX WINDS 70KT
FOR NEXT 24HOURS
OVER 50KT WITHIN 80NM
OVER 30KT WITHIN 350NM
STS 9514 RYAN (9514)
UPGRADED FROM TS
985hPa
14.7N 114.1E PSN FAIR
STATIONARY
MAX WINDS 50KT NEAR CENTER
OVER 30KT WITHIN 160NM
ASAS JMH
180000Z SEP. 19
SURFACE ANALYS
JAPAN METEOROLOGICAL AGENCY