

Tuesday May 18, 1999

Greetings from the Indian Ocean. It is nice to hear from you, even though our clocks are 12 hours apart.

Regarding your forecast for today: Air temperatures have been 27-28 C today which is close to your prediction of 28-19 C. Of course, they have been 27-29 since we left port (I exaggerate, but you get the idea). Thus the first lesson in forecasting, 'It is wise to forecast that which does not change'. Background winds are about 10 kts today, with peaks to 20 kts during rain storms. Unlike much of the previous week, today we encountered a cluster of rain storms about 100 miles by 100 miles (we can see them on the special C-band radar). Within this cluster there are about 5 individual storms about 30 miles in diameter. We have been able to see rain shafts around the ship all day. Around noon one large system passed right over us and it rained for about an hour. These systems are fairly shallow (only about 6-7 km deep) right now, but they may deepen tonight.

Regarding your questions.

1. I suggest that you attempt to consolidate your emails into one, but if a student has a burning desire to email me directly that is ok.
2. There are a variety of activities available for entertainment. We get two movies shown every night. There is a library, an exercise room, and computer games. There is a cribbage tournament underway. Some people have played cards. One of the main sources of entertainment is lounging around outside on the decks enjoying the fine weather and the fascinating clouds. At night the stars are really bright, but I am not sure how popular the stargazing is. One fellow skips rope on the deck. When the ship stops to do a CTD, a few people try fishing. So far only a few squid have been caught this way. Several crew members have rigged 'longlines' for fishing while the ship is underway. These trail out behind the ship a few hundred yards. Because the ship goes 13 kts (about 14 mph) it is rare to catch fish while trolling. However, last week they did catch a MahiMahi, which was served grilled for dinner. I haven't seen anyone hitting golf balls into the ocean. Technically, it would be a violation of pollution rules (US ships do not dispose of any plastic in the ocean).
3. The ship's cafeteria serves three main meals every day. Lunch and dinner tend to be elaborate with a choice of 3-6 entrees. Last night was steak or chicken caccitore or salmon or calzone; a big salad bar, several veggies, rice and potatoes were also available. Somehow the cook is still serving very fresh tasting lettuce, even though we left port 18 days ago. Drink selections are fruit 'juice', tea, coffee, milk, water, nothing. However, there is a coke machine in the main laboratory and the ship's store sells snacks.
4. The ocean is about 3.2 km deep where we are (roughly two miles).
5. Sometimes there is a 'swim call' on research ships, but it is fairly rare nowadays. To permit swimming from the ship, they have to put a small boat over the side and post guards with rifles to watch for sharks. This interferes with oceanographic research operations, so it isn't done very often. NOAA ships discourage swimming at all because about 5 years ago a swimmer from the R/V Discoverer was attacked by a shark and lost her leg, even with the precautions I mentioned. I don't think we will be swimming this cruise, although the water is very clear blue and a perfect temperature.
6. Speaking of sharks, we have not seen any. In the open ocean where we are sharks are fairly

rare on the surface. If we were to stay in one place and throw our dinner scraps over the side every day, we might get a few friends showing up to visit. I have made almost 30 such cruises in my life and only seen sharks a few times. Dolphins are much more common and we have already seen them several times. Someone reported seeing a sea turtle, but I missed it. We also saw a pod of small whales early in the cruise. Since getting into the open ocean, we have not seen any birds. However, if you look over the side while we are underway you can see flying fish jump out of the water and fly away about every 30 seconds. They are scared by the ship and flying is their primary predator escape mechanism. They usually glide about 20-30 feet and slip back into the water.

7. We came on this cruise hoping to encounter the monsoon, so we will be disappointed if we don't. If one does hit, we will go back into our survey mode that we were in about a week ago. This will consist of driving the ship in a star pattern and stopping about once an hour to take a CTD measurement. We will keep that up for 5 days, and then head for Australia. So far, we have encountered a few rainy days like today that are caused by smallish, disorganized convective systems. A monsoon disturbance is much larger and produces strong winds (20-40 kts). Of course strong winds will make the waves get large and riding the ship will become much more uncomfortable. People will get seasick and outdoor operations will become hazardous. But we will do the best we can.

Here is another batch of data. Let me know if you can't decode this. Also, see picture at end.  
CF

Yr	M	o	DayHr	Press.	Tair	RHWS	WD	Latitude	Longitude	Tsea	
n				Millibar	deg C	%Kts	deg	ddmm.mmm		deg C	
99	5	11	1	1007.6	29.2	79	5.8	250	1140.5554	8830.8612	29.80
99	5	11	4	1008.0	29.2	80	4.9	250	1154.2936	8840.9106	29.87
99	5	11	7	1006.0	29.5	78	5.1	254	1155.7166	8831.7916	30.10
99	5	11	19	1006.4	29.0	81	5.5	243	1140.6011	8830.8762	29.94
99	5	12	1	1008.0	29.2	77	4.2	252	1155.0761	8829.7259	29.87
99	5	12	4	1008.6	29.4	78	4.9	220	1149.6515	8831.1977	29.98
99	5	12	7	1006.3	29.4	76	3.4	211	1151.5725	8840.2457	30.16
99	5	12	10	1005.2	29.3	78	2.9	248	1158.6107	8830.9584	30.21
99	5	12	13	1006.8	28.6	77	4.0	199	1140.9391	8831.1559	30.29
99	5	12	16	1008.0	28.9	83	3.5	215	1159.9869	8845.0503	30.02
99	5	12	20	1005.8	28.7	78	5.7	234	1152.5665	8822.1664	29.95
99	5	12	23	1006.3	29.2	78	7.8	237	1145.8221	8843.0655	29.93
99	5	13	1	1008.0	29.3	76	5.2	247	1152.6655	8839.5610	29.94
99	5	13	4	1007.9	29.3	78	6.6	260	1157.4608	8830.9019	29.88
99	5	13	19	1005.6	27.6	89	0.8	203	1157.5860	8836.0822	30.02
99	5	13	23	1004.6	28.8	78	7.6	212	1148.0376	8830.8931	30.00
99	5	14	2	1006.3	29.5	71	5.1	204	1153.5637	8840.3126	30.03
99	5	14	5	1006.1	29.5	74	2.6	210	1157.5680	8837.4695	30.05
99	5	14	7	1004.3	29.5	74	4.7	220	1154.9750	8829.5583	30.14
99	5	14	11	1003.1	29.4	74	4.9	196	1145.1797	8845.0918	30.30
99	5	14	13	1004.5	29.4	74	3.5	182	1154.7897	8838.0109	30.29
99	5	14	16	1006.0	29.3	76	5.1	180	1156.5785	8830.9045	30.09
99	5	14	20	1004.4	29.1	77	6.6	194	1152.0809	8839.1154	30.00
99	5	14	22	1004.0	28.9	76	5.9	192	1200.0211	8845.0132	30.02
99	5	15	1	1006.2	29.2	76	6.8	199	1153.6031	8825.4558	29.88
99	5	15	8	1004.0	29.3	76	2.4	185	1201.9731	8832.9252	30.19
99	5	15	11	1002.9	29.7	68	0.8	234	1148.5886	8830.8926	30.11
99	5	15	15	1005.6	29.0	77	0.5	200	1114.8874	8830.0250	29.98
99	5	15	18	1005.7	28.7	79	3.6	263	1046.9047	8830.0916	29.79
99	5	15	22	1005.0	28.7	79	5.3	264	1004.7424	8830.0486	29.62
99	5	16	2	1007.3	28.4	82	3.8	253	930.0372	8830.0497	29.24
99	5	16	4	1007.3	28.5	79	5.5	268	909.7429	8830.0313	29.30
99	5	16	7	1004.8	28.6	79	4.3	266	844.7034	8830.0788	29.46
99	5	16	11	1004.7	28.5	79	4.7	256	800.6137	8830.0095	29.33
99	5	16	15	1006.7	28.2	81	1.5	215	728.5242	8830.2375	29.17
99	5	16	18	1005.8	28.2	79	4.9	265	659.7800	8830.2085	29.06
99	5	16	22	1005.3	28.2	82	6.4	261	618.8537	8829.9889	29.03
99	5	17	2	1007.9	28.3	80	3.9	243	541.1519	8830.0030	29.23
99	5	17	6	1007.1	28.7	78	3.2	2	459.9350	8829.9909	29.43
99	5	17	11	1005.6	28.9	76	3.1	253	410.8759	8829.9846	29.39
99	5	17	15	1008.2	28.9	75	5.4	268	331.0534	8830.0233	29.71
99	5	17	18	1008.3	28.4	76	2.5	263	259.8896	8829.9863	29.45
99	5	17	22	1006.9	28.1	79	6.0	266	227.4158	8829.9860	29.45