

GULF STREAM DRIFT MISSION REPORT

DAILY PRESS BULLETINS





GULF STREAM DRIFT MISSION REPORT

• GRUMMAN CORPORATION • BUREAU JACQUES PICCARD
• U.S. NAVAL OCEANOGRAPHIC OFFICE • NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Mission News Headquarters: 747 NATIONAL PRESS BUILDING, WASHINGTON, D. C. • Tel.: (202) 393-2666

BULLETIN # 1

Release for Tuesday A. M. s

GULF DRIFT COMMENCES OFF FLORIDA COAST

Port of Palm Beach, July 15--The research submersible "Ben Franklin" today begins its slow underwater journey in the depths of the Gulf Stream, 15 miles off the coast here.

The 50-foot vehicle was towed from the harbor yesterday to a point southeast of Palm Beach, where the ballast tanks were flooded and the vessel's crew of six dipped beneath the surface for the start of a three-day training exercise. If all systems perform properly, the dive will be extended to a full 30-day program of scientific measurements, recordings and observations.

The program plan calls for a two-hour sit on the ocean bottom today for calibration of instruments, then ascent to 30-feet above the sea floor for a 24-hour photo-mapping exercise. Tomorrow, a direct telephone link from the Ben Franklin to newsmen at Cape Kennedy will be attempted as the sub cruises within 50-miles of the Apollo 11 launch site.



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BULLETIN #2

For Release to Wednesday A.M.'s

RESEARCH SUBMERSIBLE BEGINS NORTHWARD TREK

Port of Palm Beach, Florida (July 16) ---With the Gulf Stream Drift Mission less than 48 hours old, Grumman Aerospace engineers are already considering possible new information uncovered about the surging warm water current.

Since Monday night when the research submersible BEN FRANKLIN and her crew of six descended to the ocean bottom 19 miles off the coast of Palm Beach, the 50-foot craft has drifted northward at more than six-tenths of a knot, considerably faster than the predicted speed of the current at 1700 feet.

Yesterday morning (Tuesday) the scientific program got underway with a bang, as a series of small explosive charges were detonated from the surface support ship, Privateer. By measuring the elapsed time of the echo bouncing off the ocean floor, scientists can compute the water's depth and the sound-absorbing characteristics of the sea bottom.

The BEN FRANKLIN, reported at 11:00 a.m. (EDT) Tuesday at 26°48' North and 79°42' West, is expected to attain and hold a cruise depth of 600 feet for the next few days, pushed along at a speed of 3.5 knots. The vehicle will pass Cape Kennedy during this transit, where a voice communication link-up with newsmen covering the Apollo 11 space shot will be attempted.



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BULLETIN #3

For Immediate Release

APOLLO CREW GETS UNDERSEA MESSAGE FROM BEN FRANKLIN

Port of Palm Beach, Florida (July 16) -- The Apollo 11 crew got a good luck message from inner space today as they awaited their blastoff into outer space. The unlikely source of the message was a submarine drifting 600 feet below the surface in the Gulf Stream off the Florida coast.

The Grumman Aerospace Corporation's BEN FRANKLIN, which departed Monday on what could become a 30-day underwater research expedition, telegraphed the Apollo 11 crew its best wishes via a sonar underwater telephone link to its surface support ship and from there to the Grumman home base in West Palm Beach.

The crew, headed by Swiss ocean engineer, Dr. Jacques Piccard, said, "From crew of BEN FRANKLIN to crew of Apollo 11 -- We all wish you fair wind and a following sea. Good luck."

The fifty-foot, 140-ton submersible disappeared under the waves Monday night for a four-day dress rehearsal that will continue to up to four more weeks if all systems perform as expected.

The current position is 26°49' North and 79°43' West.



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BULLETIN #4

For Immediate Release

SUBMARINE EXPLORERS "COOL IT" AT 600 FEET AS DRIFT MISSION PROGRAM CONTINUES UP FLORIDA COAST

Washington, D.C. (July 17) -- The northward underwater journey of the Grumman research submersible BEN FRANKLIN continues on schedule with no major problems, company officials reported today.

At Noon, the 50-foot vehicle and her crew of six were 49 miles east of Cape Kennedy, drifting at a rate of 2 knots in 600 feet of water. Donald J. Kazimir, Skipper of the submarine, commented by underwater telephone to the surface support ship "Privateer" that the crew had settled down to the pre-determined routine and the scientific program was being followed as scheduled. The former U.S. Navy submariner added that the six explorers were "comfortable in the 62-degree, 73-percent relative humidity interior of the submarine."

A decision whether to extend the three-day "rehearsal" drift into the full 30-day Gulf Stream Drift Mission will be made Friday morning, Grumman Program Director, Walter Muench, disclosed at the sub's West Palm Beach home base. "A review of the status of all systems on board the BEN FRANKLIN and inputs from the crew and Mission Control Director will be considered before we issue the go or no-go order," he pointed out. "We are very optimistic at this time," Muench added.

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BEN FRANKLIN --22--

The vehicle is scheduled to begin its second excursion to the bottom at 7:00 p.m. tonight, cruising at the 1800 foot level for up to 24 hours while collecting data.

The BEN FRANKLIN, built and operated by Grumman Aerospace Corporation, left Port of Palm Beach on Monday and commenced diving at 8:45 p.m. The crew is headed by Dr. Jacques Piccard who designed and supervised construction of the vehicle, and includes Skipper Kazimir; Erwin Aebersold, Swiss pilot; R. Frank Busby, U.S. Naval Oceanographic Office scientist; Ken Haigh, British Royal Navy acoustician and exchange scientist in the Naval Oceanographic Office, and; Chester B. May, NASA researcher.

If the decision to continue for the full Drift Mission is made, the BEN FRANKLIN is expected to re-emerge from the depths around August 11, at a point 200-300 miles southeast of the tip of Cape Cod.

Bulletin # 4



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BULLETIN #5

For Immediate Release
FOR WEEKEND EDITIONS

DRIFT MISSION GETS GO-AHEAD SIGNAL

Washington, D.C. (July 18) -- The Gulf Stream Drift Mission, most ambitious attempt yet made to unlock the secrets of the surging current of warming waters that sweep the coasts of North America and Europe, was given the green light to proceed beyond the three-day "dress rehearsal" stage, late Thursday night, as the Grumman Aerospace Corporation's submersible BEN FRANKLIN glided past Cape Kennedy at a depth of 1500 feet. By Friday night, the 146-ton steel submersible had logged more than 100 hours of submerged scientific investigation -- by far the longest underwater mission of any privately-operated vehicle, and well beyond its own record of 72 submerged hours.

Grumman officials decided to continue the northward journey of the 50-foot submarine after three days of functional tests and crew operations. Since submerging Monday night off the coast of Palm Beach, the vehicle had made two bottom excursions to depths of 1500 to 1800 feet, drifting at other times between 600 and 650 feet. A bottom reverberation experiment, relying on small explosive charges detonated from the surface support ship was carried out on Tuesday, and the Grumman, U.S. Naval Oceanographic Office and NASA researchers on board reported that their scientific program was being implemented generally as planned.

During the day on Thursday the lithium hydroxide panels which remove carbon dioxide from the atmosphere within the cigar-shaped submarine were changed, when instruments recorded levels approaching the 1.3 per cent allowable maximum. An immediate reduction in the contaminant was noted when the new panels were activated. Minor instrumentation and subsystem problems were encountered during the first 96 hours of the mission, and backup systems or necessary repairs were made in most cases.

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The crewmen reported spotting a large medusa (jellyfish) some 30 feet long, with tentacles as thick as four inches in places. They also were "investigated" by two broad billed swordfish as they drifted at 650 feet off the coast of Cape Kennedy. In a brief report the submariners said that switching on a single thalium iodide lamp had disclosed swarms of colorful and strange plankton, the small marine organisms which rank lowest in the chain of sea life.

Grumman officials at West Palm Beach noted that the Gulf Stream normally considered a warming influence on the coastal states, the British Isles and northern Europe, was a "chilling experience" for the men aboard the submarine, with temperatures at the 1800 foot depths around 56 degrees, and at 600 feet, about 65 degrees. The crew is provided with thermal underwear and warm clothes, in anticipation of these conditions, the Grumman base added.

In all, six excursions to the bottom for photographic documentation and other measurements are planned over the projected 30 day mission. The BEN FRANKLIN should re-emerge about 200-300 miles off the tip of Cape Cod if the full program is realized.



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BULLETIN # 6

For Immediate Release

HEAD COLDS, SWORDFISH ATTACK FAIL TO DAUNT UNDERSEA DRIFT MISSION

Washington, D.C. (July 21)--Grumman Aerospace Corporation's research submersible "Ben Franklin" neared the coast of Georgia today as it continued its Gulf Stream Drift Mission despite a rash of head colds among the crew and an attack by an angry swordfish.

The noon position of the sub, with her crew of six led by Dr. Jacques Piccard, was about 95-miles off shore between Jacksonville and Savannah, at coordinates 31° 01.6' north latitude and 79° 42.5' west longitude, at a depth of 780-feet.

The crew's colds have responded to medication and are under control. The 50-foot craft was undamaged in a joust with one of a pair of broad-billed swordfish it encountered some 650-feet below the surface. The swordfish attacked after a swim-along inspection of the cigar-shaped sub.

All systems were reported in good condition as the Ben Franklin began its second week underwater on its northward trek in the Gulf Stream. Potable water remains good and carbon dioxide trace contaminants have been no problem. The sub crew, as well as researchers from Grumman, the U.S. Naval Oceanographic Office and NASA aboard surface support ships, continue to conduct scientific experiments generally as planned.

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BEN FRANKLIN 2-2-2

Among minor problems have been a blocked sink drain and a broken handle on the head pump. Both problems were rectified. Power consumption remains below budget and surface conditions continue to be good, with calm seas and little wind.

If all continues well, the Ben Franklin will maintain its efforts to solve some of the mysteries of the Gulf Stream until it re-emerges from the depths around August 11, at a point 200-300 miles southeast of the tip of Cape Cod.

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Bulletin #6



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BULLETIN # 7

For Immediate Release

SUBMARINE EXPLORERS EXPERIMENT, TAKE BOTTOM PHOTOS DESPITE CURRENT, OBSTACLES

Washington, D.C. (July 22)--Nimbly skirting bottom obstacles and using its engines to hold position in strong cross currents, Grumman Aerospace Corporation's research submersible "Ben Franklin" today took a series of photographs of the ocean bottom, at a depth of 1,800-feet about 80-miles off the coast of Savannah on the way to Charleston.

The crew, led by Dr. Jacques Piccard, had its busiest day since the 50-foot craft submerged July 14 off the coast of Palm Beach to begin its Gulf Stream Drift Mission. Experiencing the greatest bottom drift since the voyage began, the Franklin had to apply power to its engines to combat sideways drag while the researchers photographed the bottom with stereo cameras.

The scientists conducted bottom reverberation experiments, measuring the speed of sound in water and the effects of the deep scattering layer on sonar equipment. The sub's own sonar gear worked perfectly to warn it of obstacles, changes in the bottom characteristics, which necessitated a 100-foot climb. The Franklin returned to the bottom after clearing the obstacles.

Support ships continued to enjoy good surface conditions, with seas calm and winds south at five knots. A school of playful dolphin provided endless amusement, as well as supper, for the crew aboard the surface support ship "Privateer." The surface vessel's crew also spied a very large school of large-sized blackfish.

--more--

BEN FRANKLIN 2-2-2

Researchers from the U.S. Naval Oceanographic Office, Grumman and NASA aboard the surface ships, as well as the Franklin crew, have been accumulating abundant scientific data. Tapes made by the sub crew will be sent ashore today.

The exact position of the sub, provided by the Coast Guard at 11 a.m., was $31^{\circ} 32.5'$ north latitude and $79^{\circ} 27'$ west longitude.

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Bulletin #7



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Bulletin # 8

FOR IMMEDIATE RELEASE

24-HOUR SEAFLOOR SURVEY MARKS BEN FRANKLIN NORTHWARD DRIFT

WASHINGTON, D.C. (July 23) --- The Grumman Aerospace Corporation submersible Ben Franklin recorded another "first" for underwater exploration today, cruising for 24 hours above the ocean bottom at heights from 20 to 100 feet, in more than 1300 feet of water off the Georgia coast. The research vehicle made continuous physical measurements and stereo photographs of the sea floor during the transit.

According to Grumman officials aboard the surface support ship, Privateer, the Gulf Stream Drift Mission, now in its ninth day, brought the 50-foot Ben Franklin to a point 70 miles off the coast of Charleston, S.C., drifting at a depth of 750 feet. Until coming up to that level this morning, the sub had spent an entire day skimming the ocean floor, recording marine phenomena and taking photographs with her twin 70mm cameras.

At one time, Grumman skipper, Donald J. Kazimir had to bring the 146-ton vehicle up from 20 to 100 feet above the bottom when his collision-avoidance sonar indicated obstacles ahead. The obstructions proved to be gigantic coral heads, which crewmen described as "fantastic" and "very exciting." The submariners added that the sea floor formations and marine life, especially great numbers of squid, were "more beautiful than anything we had seen previously in all our practice operations off the coast of Palm Beach."

-more-

Ben Franklin -22222222

Kazimir reported some difficulty in holding the submarine stable and in proper hovering mode for the photographic experiment. He reported that currents were exceptionally strong and that masses of water moving in a verticle direction were affecting the "bottom keeping" ability of the vehicle. The photographic mission, performed under the direction of U.S. Naval Oceanographic Office scientist, Frank Busby, was satisfactorily completed, however.

Earlier in the day, the Navy ship Lynch left its station above the Ben Franklin to return to Charleston, with its complement of oceanographers and Grumman scientists. The vessel will rejoin the permanent surface support ship, Privateer, later this week after provisioning at the South Carolina naval facility tomorrow.

Inside the submersible, temperatures dropped to around the 53-degree level when the craft descended to the 1300-foot depths. To counteract rising humidity in the closed environment, some 550 pounds of silica gel were distributed to absorb excess moisture. The crew was reported in good spirits, albeit tired after the continuous vigil at instruments and portholes during the 24-hour bottom survey.

At 11 A.M. today (Wednesday) the Ben Franklin was reported at 32 degrees, one minute north, and 78 degrees, 49.4 minutes west. If all goes well, the vehicle and her crew of six will reemerge from the ocean some 200-300 miles off the tip of Cape Cod next month.

Bulletin #8



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BULLETIN # 9

FOR IMMEDIATE RELEASE

UNDERWATER WAVES IMPEDE
BEN FRANKLIN PROGRESS;
CREW FINDS LIVING "COLD"

WASHINGTON, D.C. (July 24) --- The research submersible Ben Franklin ran into her first real problems today, after ten days of scientific investigation in the depths of the Gulf Stream. Both external and internal conditions were affecting the 50-foot deep diving vehicle and her crew, now drifting silently at 700 feet off the Atlantic coast.

Donald J. Kazimir, skipper of the Grumman Aerospace Corporation craft, reported that the progress of the Franklin up the Gulf Stream was sharply interrupted off the coast of Charleston, South Carolina, when repetitive internal waves at the 700-foot depths swept the submarine on an easterly and slightly southerly course.

A Grumman spokesman at West Palm Beach said the wave motion seemed to be caused by the hilly contours of the ocean floor at that point, an observation confirmed by the Franklin's crew, but not noted on even the latest topographical charts of the area. In the 24-hour period ending at noon today (Thursday), the submersible had been driven approximately 25 nautical miles to the east and only two miles north of her previous position.

The program for later today calls for the craft to dive to the bottom at 1800 feet, and from there continue the slow northward trek. Once back in the Gulf Stream, the sub is expected to make forward speeds of up to 1.7 knots.

-more-

Ben Franklin problems -2222222222

Crewmen also radioed to the surface support ship that they were finding it increasingly difficult to work in the relative cold temperatures the sub is encountering at depths between 600 and 1200 feet. Their latest reports had the internal temperature at 57 degrees (F.), but added that they were not discouraged by the uncomfortable chill and that all scientific programs were being completed as planned.

Since diving beneath the surface on July 14, off the coast of Palm Beach, Florida, the Franklin has covered more than 400 miles. If the mission continues to its proposed conclusion, more than 1200 submerged miles of Gulf Stream will have been investigated over a 30-day period.

The Franklin's position at noon today was 32-degrees, 4.5 minutes north and 77-degrees, 59.5 minutes west.



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BULLETIN # 10

FOR IMMEDIATE RELEASE

FOR WEEKEND EDITIONS

NEW QUESTIONS RAISED BY BEN FRANKLIN'S UNDERWATER ACTIVITIES OFF S.C. COAST

WASHINGTON, D.C. (July 25) --- A series of paradoxes are emerging from the submarine investigations of the research vehicle Ben Franklin, as the Grumman Aerospace Corporation craft struggled to regain a position in the Gulf Stream and continue her northward journey at mid-day today (Friday).

The 50-foot vehicle and her crew of six were pushed out of the stream late Thursday after encountering a series of internal verticle waves which made depth stability difficult for Grumman skipper Donald J. Kazimir, and drove the submersible some 25 miles east of her original position. Cruising at a depth of 750 feet, the Ben Franklin today activated her four electric motors in an effort to re-enter the Stream's jet core and continue the trek to the north. Her position was plotted at a point 85 miles south of Cape Fear, South Carolina, (32-degrees, 27-minutes north and 77-degrees, 40.2-minutes west)

In evaluating the cause of the up-and-down wave motion in mid-water, crew member Frank Busby of the U.S. Naval Oceanographic Office, noted that the sea bottom in the area is a series of undulating hills, not noted on current marine topographical charts. The deflection of northward rushing water over the hilly bottom might cause the irregular verticle movement, Busby suggested.

The crew also reported a startling absence of sea life around their vehicle, noting that after their first night below the surface on July 14, when plankton was abundant, very few fish have been spotted on the sea floor or in mid-water. One prime exception was a running assault by a pair of broad-billed swordfish earlier in the week when the Franklin cruised off the coast of Georgia.

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Because of the sparcity of sea life, one important area of scientific inquiry is as yet unrealized. The Deep Scattering Layer, a thick belt of plankton and micro-organisms which plays havoc with depth finders and underwater communications, has been curiously absent from the waters of the Gulf Stream during this first 11 days. Marine scientists on the sub and those on the surface support ship are at a loss to explain its absence.

The crewmen on the Franklin have been kept busy, nevertheless, according to Kazimir's daily report. In addition to a spellbinding 24-hour transit of the ocean floor amid towering coral heads and a colorful display of squid, the scientists have completed numerous acoustic experiments, photographic assignments and marine biological observations. A continuing series of psychological/physiological measurements are being performed by NASA researcher Chester B. May, to relate long-term isolation under the water to future long-term space journeys. Other crewmen include Dr. Jacques Piccard, who designed the Ben Franklin; Kenneth Haigh, British Navy acoustician, and exchange scientist with the Naval Oceanographic Office; Swiss pilot Erwin Aebersold, as well as Kazimir and May.

The skipper's daily report also noted that May is undisputed dart-throwing champion aboard the Franklin, having taken Kazimir in two straight matches today. Reading and recorded music also help the crew pass their infrequent leisure moments as the submersible drifts at depths from 600 to 2,000 feet.



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Bulletin # 11

FOR IMMEDIATE RELEASE

SUBMARINE VOYAGE CONTINUES AFTER RELOCATING JET CORE OF GULF STREAM OFF S.C. COAST

WASHINGTON, D.C. (July 28)--- The Ben Franklin, neatly repositioned back in the Gulf Stream, at 700 feet, today added new miles to her already record-setting underwater expedition, as the Grumman Aerospace submersible neared Cape Hatteras, North Carolina.

On Saturday, after drifting more than 450 miles in 279 hours, the vehicle was forced to surface and go under tow, when it became caught in a gigantic, swirling eddy, 600 feet beneath the surface. During the transit some 50 nautical miles eastward, all hatches were kept tight shut to preserve the internal environment of the sub.

According to Grumman officials at the West Palm Beach home base of the Franklin, contingency plans had been prepared for just such an eventuality. They pointed out that this, in effect, is one of the scientific findings of the unprecedented Gulf Stream Drift Mission. Published charts of the Gulf Stream do not show the position of the jet core of the stream at a specific time of the year, and it must be scientifically located, particularly below the surface.

Aboard the vehicle, the crew of six and scientific apparatus all remain in good condition, with no serious operational or life support problems anticipated. The Franklin's position at noon today was 33-degrees, 1.2 minutes north and 76-degrees, 12.5 minutes west.



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Bulletin # 12

FOR IMMEDIATE RELEASE

BEN FRANKLIN CREW OPTIMISTIC AFTER TWO WEEKS UNDER SEA

WASHINGTON, D.C. (July 29) --- After 15 days of submerged scientific activity, the crew of the Ben Franklin today was reported "optimistic" and looking forward to completing 30 days of undersea exploration.

Since diving beneath the surface off the Florida coast on July 14, the Grumman Aerospace Corporation sub and its crew have covered more than 550 miles, most of them at depths from 600 to 1,800 feet. Today the undersea vehicle made a descent to 1,800 feet, conducting ambient light and acoustic measurements for the Naval Oceanographic Office. Unlike the five previous excursions to the seafloor when stereo photographs were taken, today's dive merely placed the Franklin in mid-water, since she is now out beyond the Continental Shelf and in waters more than 12,000 feet deep!

In addition to the light and sound experiments, the crewmen kept their "house" in order, replacing lithium hydroxide panels throughout the sub which absorb unwanted carbon dioxide, and deploying more than 300 pounds of silica gel to control internal humidity.

Today for the first time the sub and her surface support ships were joined by an ASWEPS (Anti-Submarine Warfare Environmental Prediction Services) airplane which made several passes over the area, completing airborne temperature measurements of the Gulf Stream.

The Ben Franklin was plotted today some 120 miles due south of Cape Hatteras, N.C. at 33-degrees, 17.4 minutes, north and 75-degrees, 48-minutes, west.



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Bulletin # 13

FOR IMMEDIATE RELEASE

SCIENTIFIC PROGRAM BECOMING "ROUTINE" FOR SUBMARINERS AFTER 16 DAYS' ADRIPT

WASHINGTON, D.C. (July 30)--- Scientists aboard the Grumman Aerospace Corporation submersible Ben Franklin continued their long-term measurements and observations of marine phenomena in the Gulf Stream, as the drifting "laboratory" completed 16 days of underwater data-gathering.

A report received by the Franklin's surface support ship, the Privateer, noted that life support conditions within the 50-foot sub were well within acceptable tolerances for trace contaminants and carbon dioxide levels, and that the crew was performing its various scientific and housekeeping functions "routinely".

Because of the long duration of the Gulf Stream Drift Mission, each of the six men aboard the submersible has taken along with him individual or group recreational articles.

Grumman skipper Donald J. Kazimir brought along a dart board, permanently set up in the hemispherical forward "lounge" of the Franklin. He also provided playing cards, Monopoly, Scrabble, water color paints and a set of exercising devices for his and his colleagues' use. His reading material includes a sampling of James Bond, "Ice Station Zebra", and a collection of funny stories, edited by Steve Allen.

-more-

Dr. Jacques Piccard, scientific leader of the mission, included in his personal effects a biography of Benjamin Franklin, namesake of the undersea craft, and a copy of Jules Verne's "20,000 Leagues Under the Sea". For replay on the communal tape recorder, he brought selections of Italian operas, the Magic Flute, and music from Dr. Zhivago.

U.S. Naval Oceanographic Office scientist Frank Busby limited his non-professional reading material to the "Siege of Stalingrad" and contributed some tapes of current rock and roll music to the crew's musical library. Busby confided that the high decibel count of his musical selections would probably make him unpopular with the rest of the crew.

NASA researcher Chester May felt that the long underwater mission would present an occasion for serious reading, and he took along the "History of the World" by Arnold Toynbee, and "Beginner's French", hoping that Piccard and Swiss pilot Erwin Aebersold could give him some tutorial help. May's West Virginia upbringing is reflected in folk music tapes he added to the store of recorded recreation.

The submarine at noon today (Wednesday) was reported south of Cape Hatteras, cruising at 450 feet at 75-degrees, 23-minutes west and 33-degrees, 50-minutes north.

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BULLETIN # 14

FOR IMMEDIATE RELEASE

WHOSE SIDE IS MOTHER NATURE ON?

WASHINGTON, D.C. (July 31) --- Fickle Mother Nature seems to be turning a cold shoulder to man's efforts to probe the mysteries of the Gulf Stream today, as the Grumman Aerospace Corporation submersible Ben Franklin continues her northward submerged expedition off the coast of North Carolina.

A radio report received this morning at Grumman's West Palm Beach facility indicated that the 50-foot research vehicle may again be caught in a gigantic swirling eddy of underwater current, which could expel the Franklin from the main jet core of the Stream.

Last Saturday, after drifting more than 450 miles beneath the waves, the sub was forced to surface briefly for a 50-mile eastward tow back into the Gulf Stream. Today's report hinted that such a transit along the surface might be in store for the submarine and her crew of six scientists-researchers.

In spite of the earlier unscheduled detour, the Franklin was approximately on her predicted schedule, 17 days through the Gulf Stream Drift Mission. Today's report put the vehicle some 49 miles south-east of Cape Hatteras, N.C., at a depth of 450 feet. Over the last two and a half weeks, the Franklin has cruised between 1800 and 450 feet along the Florida, Georgia and South Carolina coasts, photographing the seafloor, making acoustic and marine biological measurements for the U.S. Naval Oceanographic Office.

-more-

Ben Franklin vs Mother Nature- 22222222

The radio report today also contained personal greetings from Swiss crewmen Jacques Piccard and Erwin Aebersold to the president of Switzerland on the occasion of the country's Independence Day tomorrow (August 1). The message was relayed by cable to the Federal Palace in Berne by Grumman personnel ashore.

The Drift Mission, which began on July 14, is scheduled to conclude some 300 miles off the tip of Cape God when the Franklin re-emerges sometime next month.

At noon today the submarine was plotted at 75-degrees, 2-minutes west and 34-degrees, 30.3-minutes north.

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Bulletin #14



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Bulletin # 15

FOR IMMEDIATE RELEASE

BEN FRANKLIN DODGES FROM EDDY,
NOW OFF OF CAPE HATTERAS

WASHINGTON, D.C. (August 1)--- The Ben Franklin pulled abeam of Cape Hatteras, North Carolina, today, as the Gulf Stream swept the Grumman Aerospace submersible Ben Franklin on an easterly course away from the North American mainland.

After apprehensions voiced yesterday by the operations personnel aboard the surface support ship Privateer that the submersible had caught up in a gigantic swirling eddy of underwater current, today's report indicated that Franklin was playing touch and go with the restraining waves but was well along her way at a depth of 550 feet some 65 miles due east of Cape Hatteras. The submersible's position was plotted at 35 degrees 6.6 minutes north and 74 degrees 35 minutes west. All life support and scientific instrumentation aboard the submersible was reported and said to be working well.

A summary of the first 18 days activities of the Gulf Stream Drift follows:

Day 1 (7/14) Ben Franklin departs Port of Palm Beach, 10:40 A.M., is towed 19 miles offshore and dives at 8:56 P.M. to 1,800 feet.

Day 2 (7/15) At 1:15 A.M. Franklin rises to 25 feet off bottom to begin northward drift, conducting bottom reverberation experiments.

Day 3 (7/16) Drifting at speeds exceeding expected velocities, Franklin's crew radios best wishes to Apollo astronauts about to blast off for the moon.

Day 4 (7/17) All crewmen, save Aebersold have head colds; while the nation swelters, temperature inside Franklin is a cool 62-degrees. Scientific program progressing nicely.

Ben Franklin Dodges From Eddy- 22222222

Day 5 (7/18) Decision to continue for full mission is affirmed; Franklin passes 100 hour mark, bettering own submerged record.

Day 6 (7/19) Colds responding to medication and advice from MD on surface ship; pair of broadbilled swordfish "attack" Franklin; neither combatant suffers injury.

Day 7 (7/20) Aebersold sends birthday greetings to his wife, Simone; NASA experiments progressing nicely; Franklin well within power budget; readings from USNS Lynch indicate sub is drifting out of stream; GULF STREAM powers transit to east puts Franklin right on course again.

Day 8 (7/21) Biggest problems on board are clogged sink drain and broken pump handle on toilet, both remedied by Chet May and Ken Haigh. Franklin progressing at 780 feet between Jacksonville and Savannah.

Day 9 (7/22) Off the coast of S.C., Franklin rises to 100 feet above sea-floor to avoid giant coral heads, first spotted on collision avoidance sonar; surface support ship sights "30-foot blackfish"; strong vertical wave movements make depth holding difficult for Skipper Kazimir.

Day 10 (7/23) Franklin completes 24-hour bottom photo-making cruise, first time this has ever been done. Crew describes coral and fishlife as "fantastic" and "more beautiful than anything we have seen thus far".

Day 11 (7/24) Vertical waves throw Franklin off course; temperatures inside sub drop to 57-degrees, making work difficult for crew.

Day 12 (7/25) Internal waves attributed to hilly seafloor which does not show up on charts; absence of marine life or deep scattering layer another paradox for sub and surface ship.

Day 13 (7/26) After more than 450 miles of submerged drift and 280 hours of activity, Franklin is expelled from the Stream. Decision is to conserve power and surface for tow 50 miles eastward, keeping hatches sealed.

Day 14 (7/27) After tow, Franklin dives to 1000 feet and continues northward drift. Situation demonstrates that jet core of Stream is entirely unpredictable and must be located scientifically, particularly below the surface.

Day 15 (7/28) Once again in the Stream, crew resumes scientific activities; life support systems working flawlessly; crew health and spirits excellent.

Day 16 (7/29) Navy ship Lynch conducts acoustic experiments with Franklin; ambient light and bottom reverberation tests also completed; Anti-submarine Warfare Environmental Prediction Services aircraft makes several passes, taking temperature readings on Gulf Stream.

Day 17 (July 30) Crew regarding chores now as "routine"; taped music and reading take up crew's leisure moments; May is named dart champ among the crewmen.

Day 18 (July 31) Early indications are received that Franklin may be caught in another eddy. Awaiting confirmation by deep temperature probes before decision on whether to surface for tow again. Position 49 miles southeast of Cape Hatteras, N.C.



GULF STREAM DRIFT MISSION REPORT

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Bulletin # 16

FOR IMMEDIATE RELEASE

SIGHT SHARKS, HEAR WHALES AS FRANKLIN ~~BEGINS~~^{LEAVES} THIRD WEEK OF GULF STREAM DRIFT MISSION

WASHINGTON, D.C. (August 4) --- As the research submersible Ben Franklin ~~began~~^{ended} her third week of underwater investigation today, the crew reported stepped up activity both within and outside the cigar-shaped vehicle, which is now drifting at 750 feet, some 265 miles east of Cape Hatteras, N.C.

According to officials of Grumman Aerospace Corporation, which owns the Franklin and is chief sponsor of the underwater mission, large numbers of sharks were sighted over the weekend, comprised of blue, gray and hammerheads. Most interesting of the new phenomena reported today, however, was the recording of dolphin sounds and other noises, which British Navy acoustician Kenneth Haigh, aboard the Franklin tentatively described as "whale calls". The presence of whales in the Gulf Stream near the reported position of the submersible is common at this time of the year, Grumman officials noted.

Underwater sightings also included what Skipper Donald J. Kazimir described as "a beautiful barracuda" as well as swarms of plankton --- small marine organisms which unite in colonies and drift with the ocean currents. Kazimir said that the tiny creatures were attracted by the sub's thalium iodide lights during the night, but were not seen during daylight hours. He added that few large fish were seen during daytime, and that the sub has yet to encounter the Deep Scattering Layer, the belt of marine life which plays havoc with echo sounders and depth-measuring equipment. One of the chief scientific objectives of the U.S. Naval Oceanographic Office experiments on the long drift was to dwell in and measure the physical characteristics of the layer.

-more-

Franklin sights sharks, evesdrops on whales - 2222222

On board the submersible, samples of plankton were acquired using a special device which permits retention of specimens under the same pressure and temperature as those surrounding the craft. Crewmen reported "capturing" an interesting one-inch creature as well as several varieties of plankton grains. These are being studied and classified by Naval Oceanographic Office scientist, Frank Busby and Dr. Jacques Piccard, scientific leader of the mission.

In observation of Swiss Independence Day, Saturday, Piccard and Swiss pilot Erwin Aebersold celebrated with "a miniature pyrotechnic display", explained by those on the surface support ship, Privateer, as a lighted match. Because of the limitations on oxygen and breathing air, no fires or smoking are normally permitted during the extended submerged expedition.

As the third week of the mission concluded, the Franklin had covered more than 800 miles, all but a few of them underwater. One brief surface transit was completed when the Gulf Stream spun the 50-foot submersible out of its jet core and into a giant eddy. The vehicle is averaging 1.7 knots, although today's report notes that the current is pushing the craft at a speed in excess of two knots. Five excursions to the bottom for photo-mapping and one descent to 1,800 feet while the boat was in 12,000 feet of water marked the journey to date.

At noon today the Franklin was plotted at 71-degrees, 23-minutes west and 36-degrees, 19.9-minutes, north.

Bulletin #16



GULF STREAM DRIFT MISSION REPORT

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Bulletin # 17

FOR IMMEDIATE RELEASE

CREWMEN SHARE IMPRESSIONS AFTER THREE WEEKS' DRIFT- ING IN THE GULF STREAM

WASHINGTON, D.C. (August 5) ---Suggestions that future ocean travel may be conducted beneath the waves rather than on top of them and a strong similarity between isolation in a submarine and future space travel conditions were contained in a series of statements radioed today from the crew of the Grumman Aerospace Corporation submersible Ben Franklin, now in its fourth week of underwater exploration off the coast of Virginia.

The quotes, received at Grumman's Florida operational base via radio relay, reflect the high spirits of the six crew members as their craft drifted away from the North American mainland, some 600 feet into the GulfStream.

R. Frank Busby, U.S. Naval Oceanographic Office scientist, was perplexed by the traditional adherence to "over water" marine traffic. He explained:

"A few days ago we had occasion to cancel an operation due to rough surface seas. At the same time, we, at 600 feet, could only generate a maximum pitch of 10-degrees, when all six of us ran quickly fore and aft. Such stability is not unique to one submersible, but is virtually always the case when operating only a few hundred feet below the air-sea interface. With the technology demonstrably available to conduct almost all free operations under the sea and away from the expensive, time-consuming, and frustrating, often tempestuous sea-surface state, why we continue to witness a reluctance on the part of the marine-oriented community to plunge beneath the imponderables of sea-state weather into the more constant and predictable undersea realm is a puzzlement."

-more-

words from the deep - 22222222

NASA researcher Chester May, whose scientific objectives include psychological and physiological measurements of the crew during the long underwater voyage, as a possible analog to future space travel conditions, noted:

"I believe that living in future space stations will be very similar to the way I have been living for the past 21 days in the ocean. I also believe that the space program can benefit considerably from being involved in these types of scientific missions. There is a different kind of social structure here which points to things that can be helpful in the design of future laboratories presently being studied for scientific research in space."

On a lighter note, May, who has emerged as undisputed dart champion aboard the Franklin, added, "However, there are also things we do here that probably will not be applied in space, such as throwing darts... a game we depend upon to break up the routine here deep in the ocean."

Thoughts of home were reflected in the comments of British Navy acoustician, Kenneth Haigh, an exchange scientist with the Naval Oceanographic Office. He said:

"The British climate is ruled by the Gulf Stream. I wish that the climate would remain as serene as the Stream is here. Sixteen more days like this and we could perhaps be off Lands End! This is the most comfortable way to sail the sea that I have ever experienced."

Grumman skipper, Donald J. Kazimir, looking at present conditions and a few days into the future commented:

"We are proceeding at a greater speed than anticipated, right now between 2.5 and 3.0 knots. I hope the Gulf Stream takes us near New London (Connecticut) since it would be nice to return there for a visit (to the scene of his U.S. Navy submarine training)."

Erwin Aebersold, Swiss pilot on the Franklin added, succinctly, "The past three weeks have been the shortest of my life and the most interesting."

It remained for Dr. Jacques Piccard, designer of the Ben Franklin and scientific leader of the mission to sum up the consensus aboard the craft:

"After years of thought and preparation, we are now immensely enjoying work in the peace of the deep sea... but we are still looking forward to surfacing once again."

At noon today the Franklin was reported at 70-degrees, 17-minutes west and 37-degrees, 6-minutes north, approximately 290 miles east of Norfolk, Va.



GULF STREAM DRIFT MISSION REPORT

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Bulletin # 18

FOR IMMEDIATE RELEASE

DRIFT SPEED SURPRISINGLY
FAST AS GRUMMAN SUB
PASSES 1,000-MILE MARK

WASHINGTON, D.C. (August 6)--Crewmen aboard Grumman Aerospace Corporation's research submersible Ben Franklin today reported unexpectedly high drift speeds of three knots and better as the craft passed the 1,000-mile mark on its underwater journey in the Gulf Stream.

The cigar-shaped sub's speed began increasing steadily as it passed Cape Hatteras. During the past 24 hours the vessel reached a point where it logged a total of 1,000 nautical miles traveled since it submerged July 14 off the coast of Palm Beach. Drifting at a depth of 600-feet, the Franklin is about 300-miles southeast of New York and 348-miles east-northeast of Norfolk.

The sub carried an uninvited passenger for several hours, when a squid attached itself to one of the viewing ports, apparently unconcerned with the activity within the boat. A school of tuna provided some amusement as they circled the sub. They could be seen clearly in the natural light at the 600-foot depth, reported R. Frank Busby, U.S. Naval Oceanographic Office scientist.

The temperature inside the craft has become a practically constant 68-degrees, and the crew reports conditions comfortable, with no major problems. At times the submariners could see the surface clearly from a depth of 320-feet.

The Franklin's latest nautical position, according to the U.S. Coast Guard, was 37° 45.5' north and 69° 6' west.



GULF STREAM DRIFT MISSION REPORT

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BULLETIN # 19

FOR IMMEDIATE RELEASE

SUB'S SPEED INCREASES ON DOWNHILL
LEG OF UNDERSEA DRIFT MISSION
NOW WILL SURFACE SOUTH OF NOVA SCOTIA

WASHINGTON, D.C. (August 7)--Picking up speed on the "downhill" leg of its underwater drift mission in the Gulf Stream, Grumman Aerospace Corporation's research submersible Ben Franklin today anticipated it will have traveled considerably farther than expected by the end of its 30-day journey.

The six-man crew aboard the 50-foot vessel now predicts it will surface south of Nova Scotia, about 1,000 miles off the tip of Cape Cod, rather than the 200 to 300 miles off Cape Cod in the original estimate. The bonus mileage will be due to a speed of close to three-knots, about twice as fast as anticipated.

The sub's latest position was about 300 miles east-southeast of Grumman's facilities in Bethpage, Long Island, at a depth of 600-feet. Don Kazimir, skipper of the Franklin, reported having difficulty maintaining stability, a problem which has occurred before.

Two weeks ago, a swirling underwater eddy forced the craft out of the Gulf Stream, necessitating a surface tow back into the jet core of the current. Just prior to that, the Franklin experienced a stability problem due to internal wave motion. Kazimir said he has a theory as to the probable cause of the latest stability problem, which he will relate at the debriefing session to follow the completion of the mission.

(more) PAGE #1

Bulletin # 19

SUB'S SPEED INCREASES -2-2-2-2

The Franklin already has logged more than 1,000 miles on its underwater odyssey and all systems continue to function well.

Despite the stability problems, the sub probably has enjoyed a smoother ride of late than the surface support ships Privateer and USS Lynch, the latter a hydrographic vessel of the U.S. Naval Oceanographic Office. Yesterday, the surface ships were tossed about by waves of five to eight feet, with winds of 25-knots. The sea was more calm today, but waves still rose as high as five feet and winds were northwest at 15 knots.

The Franklin's latest official nautical position, according to the U.S. Coast Guard, was $38^{\circ} 2'$ north and $67^{\circ} 38.5'$ west.



GULF STREAM DRIFT MISSION REPORT

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BULLETIN # 20

FOR IMMEDIATE RELEASE

"SPLASH UP" OF FRANKLIN SET FOR THURSDAY A. M., ENDING RECORD VOYAGE

WASHINGTON, D.C. (August 8)--The longest privately-sponsored, self-supporting, manned undersea experiment yet attempted will end Thursday morning (August 14). That is when Grumman Aerospace Corporation's research submarine Ben Franklin is expected to surface after drifting in the Gulf Stream for what will have been 30 days.

The Franklin is expected to "splash up" several hundred miles southeast of Cape Cod, south of Nova Scotia. Plans are being made to pick up the six-man crew, who will be brought ashore for debriefing, to be followed by a press conference. The Franklin itself will be towed back to land, a trip that will take an estimated 10 days.

The vessel's current position is approximately 400 miles east-southeast of Grumman headquarters in Bethpage, Long Island, at a depth of 900 feet. Tentative plans call for a dive to 1,800 feet tomorrow night, for acoustical experiments and to measure drift speed at that depth. Experiments also are being continued by scientists from the U.S. Naval Oceanographic Office and NASA.

The Franklin will surface on the 31st day after beginning its voyage July 14, when it submerged in the Atlantic southeast of Palm Beach, Florida.

A summary of the past week's activities of the Gulf Stream Drift follows:

(more)

FRANKLIN TO SURFACE THURSDAY 2-2-2-2

Day 19 (8/1) Ben Franklin dodges away from eddy; pulls abeam of Cape Hatteras, about 65-miles off shore. Gulf Stream starts sweeping submersible on easterly course away from North American mainland.

Day 20 (8/2) Crew alerted to tropical storm Anna brewing off Cape Hatteras. Life support and instrumentation systems functioning well.

Day 21 (8/3) Franklin has light brush with tropical storm Anna, which has blown itself out. Large numbers of sharks sighted, dolphin sounds and whale calls recorded. Sub now 265-miles east of Cape Hatteras.

Day 22 (8/4) Underwater sightings include barracuda and swarms of plankton. Samples of plankton acquired via special device. Crew captures interesting one-inch creature.

Day 23 (8/5) Drift speed greater than anticipated, above 2.5 knots. Franklin now 290-miles east of Norfolk, Va., at depth of 600-feet.

Day 24 (8/6) Franklin passes 1,000-mile mark. Internal temperature a comfortable 68 degrees. Squid attaches self to viewport; rides along for several hours. Tuna circle sub, clearly seen in natural light at 600-foot depth.

Day 25 (8/7) Final week of voyage begins. Speed still twice as fast as anticipated at almost three knots. Franklin now 300-miles east-southeast of Grumman headquarters, Bethpage, Long Island. Stability problem develops. Skipper Kazimir has theory as to cause.



GULF STREAM DRIFT MISSION REPORT

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Bulletin # 21

FOR IMMEDIATE RELEASE

CONCLUDING FOURTH SUBMERGED WEEK, FRANKLIN PREPARES FOR FINALE THURSDAY

WASHINGTON, D.C. (August 11) --- Today, after four weeks of drifting in the depths of the Gulf Stream, the Grumman Aerospace Corporation submersible Ben Franklin continues to perform underwater acoustic and marine biological experiments in anticipation of Thursday's "splash up" some 600 miles east-south-east of Cape Cod.

According to mission control director, W.M. "Bill" Rand, aboard the surface support ship Privateer, the Franklin, now cruising at 1,000 feet, will begin her final ascent about six o'clock Thursday morning. Some three hours later the yellow and white submersible will break the surface and be secured by a team of Grumman divers. Then, for the first time in 31 days, the hatches of the sub will be opened and the crewmen will transfer to the Privateer for a preliminary physical and breakfast. Later in the day the six submariners and several of the surface support crew will be transferred to the U.S. Coast Guard cutter Cook Inlet for the return journey to the U.S. mainland.

Current plans call for the crew to disembark at Portland, Me., sometime late Saturday afternoon, and to fly from there to Grumman headquarters in Bethpage, N.Y., where they will be reunited with their wives. Three days of debriefing and physical examinations will follow and the crew will then hold a mid-week press conference in Washington, D.C.

Franklin concludes mission on Thursday - 2222222

The Franklin will be towed back to the mainland by the Privateer, a trip estimated to take from 10-14 days. It is anticipated that the submarine will be temporarily berthed at the South Street Seaport in New York City prior to its return to the Grumman facility at West Palm Beach, Florida, later this month.

-30-

NOTE TO EDITORS: The entire crew of the Ben Franklin, led by Dr. Jacques Piccard, will participate in a press conference WEDNESDAY, August 20, beginning at 10:30 A.M. in the auditorium of the National Press Club, 13th floor, National Press Building, Washington, D.C.

An informal buffet lunch and other refreshments will follow.

Butler #21



GULF STREAM DRIFT MISSION REPORT

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Bulletin # 22

FOR IMMEDIATE RELEASE

HEARTY MEAL, HOMECOMING AWAIT SUBMARINERS AS THE DRIFT MISSION CONCLUDES

WASHINGTON, D. C. (August 12) ---While more than 2,000 guests prepare for a sumptuous state dinner tomorrow night honoring the Apollo 11 astronauts, a less-heralded team of "frontiersmen" is looking forward to its first real meal in 31 days.

The crew of the Grumman Aerospace submersible Ben Franklin will emerge from the depths of the Gulf Stream Thursday morning after drifting submerged for more than a month from Florida to a point south of Nova Scotia.

During the underwater research voyage the six men, led by Swiss ocean engineer, Dr. Jacques Piccard, have eaten only freeze-dried and dehydrated meals, all reconstituted by the addition of hot or cold water. Their first meal on the surface, aboard their support ship Privateer, is scheduled to be broiled steak and eggs, "with gallons of coffee", according to mission control director, W. M. "Bill" Rand.

Today the yellow and white, cigar-shaped craft was reported about 550 miles east-south-east of Grumman's Bethpage, Long Island headquarters, drifting at a depth of 1,000 feet. The crew's spirits, in spite of the menu and long confinement, were described as "excellent". In a moment of levity, Skipper Donald Kazimir, reported that pilot Erwin Aebersold and U.S. Naval Oceanographic Office scientist, Frank Busby, were big winners in the Monday night poker game... and Aebersold began the trip a rank amateur!

submarine voyage - 2222222

As the Franklin inches her way northward on the currents, a steady stream of basic data on marine phenomena has been gathered and recorded on the sub. This information, related to the speed, temperature, salinity and marine life in the stream, the speed of sound through water, magnetic anomalies, and stereo-photo mapping of the seafloor, will be analyzed and interpreted upon the return to port of the crew and vehicle.

Present plans call for the crew to transfer from the Privateer to the U.S. Coast Guard cutter Cook Inlet for the two-day journey to Portland, Maine. The submariners will then fly to Grumman-Bethpage for two or three days of debriefing before meeting the press in Washington on Wednesday, August 20th.

-30-

EDITOR'S NOTE: The press conference will take place in the Ballroom of the National Press Club, beginning at 10:30 A. M. An informal buffet and other refreshments will follow.



GULF STREAM DRIFT MISSION REPORT

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BULLETIN # ~~82~~ 23

FOR IMMEDIATE RELEASE.

COMPLETE PLANS FOR RE-EMERGENCE OF BEN FRANKLIN THURSDAY

WASHINGTON, D. C. (August 13) ---Today's arrival on the scene of the US Coast Guard cutter Cook Inlet marks the final preparations for the surfacing tomorrow (Thursday) of the Grumman Aerospace submersible Ben Franklin, after 31 days of drifting in the depths of the Gulf Stream.

The 50-foot underwater craft is expected to re-emerge around nine o'clock, climaxing an expedition which began on July 14th, off the coast of Palm Beach, Fla., and covered more than 1,200 miles. The position at "splash up" is anticipated to be approximately 310 miles south of Halifax, Nova Scotia.

According to W. M. "Bill" Rand, mission control director on board the surface support ship Privateer, the final ascent of the 146-ton submersible will commence at about six in the morning, from a depth of 1,000 feet. The hatches will be opened for the first time in 31 days as soon as the yellow and white craft arrives at the surface. The crew, led by Dr. Jacques Piccard and representing the U.S. Navy, the British Royal Navy, NASA and Grumman, will transfer to the Privateer for physicals and breakfast, the first real meal for the six men in more than a month.

-more-

Franklin re-emergence- 22222222

Later in the day the cutter Cook Inlet will take the men aboard and begin the two-day journey to Portland, Maine. There, on Saturday, the crew will emplane for Bethpage, N. Y., Grumman headquarters, for a reunion with their wives. Three days of physicals and debriefing will follow, with the six men scheduled to hold a press conference in Washington on Wednesday, August 20th.

Today's (Wednesday's) report from the sub noted that the last of its humidity-absorbing silica gel had been consumed and that a minor problem had developed with the waste management system. Neither situation is expected to affect the final few hours of the unprecedented ocean research mission. The sub's position today was plotted at 62-degrees, 23-minutes west and 38-degrees, 58-minutes north.

Bulletin #23



GULF STREAM DRIFT MISSION REPORT

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BULLETIN # 24-A *

FOR IMMEDIATE RELEASE

BEN FRANKLIN SPLASHES UP
SOUTH OF HALIFAX; ALL IS
WELL WITH CREW AND CRAFT

WASHINGTON, D. C. (August 14) --At 7:58 A. M. today the submersible Ben Franklin popped safely to the surface approximately 310 miles south of Halifax, Nova Scotia, climaxing the most ambitious effort ever attempted to unlock the secrets of the Gulf Stream.

The crew, led by NASA researcher Chester B. May, clambered out of the yellow and white submarine minutes after divers secured the craft and checked topside instrumentation. The Franklin, which is owned and operated by Grumman Aerospace Corp., was home for the six-man crew for 31 days, since the sub dove beneath the surface off the coast of Palm Beach, Fla., on July 14. In all, 715 hours elapsed during the mission, and more than 1,444 nautical miles of submerged observations and measurements were completed.

There were no unexpected incidents during the three-hour ascent from 1,000 feet, or in the transfer of the men from the sub to the waiting U. S. Coast Guard cutter, Cook Inlet.

*(Bulletin #24 should have read #23)

(MORE)

FRANKLIN SPLASHES UP 2-2-2-2

After preliminary physicals, the men sat down to their first real meal in more than a month-- steak and eggs. During the underwater voyage only dehydrated and reconstituted freeze-dried foods were consumed.

The crew and some of the mission control team are heading to Portland, Maine, aboard the cutter, where they are expected to arrive tomorrow afternoon. A reunion with their wives is planned for Friday night at Grumman headquarters in Bethpage, Long Island. On Saturday, three days of physicals and a debriefing will begin. The entire crew will meet the press at a news conference Wednesday, August 20, in the National Press Club in Washington, D. C.

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NOTE TO EDITORS: This is the last of the Daily Drift Mission reports. Grumman News Headquarters at 747 National Press Building, Washington, will remain open through Thursday, August 21, and a wrapup will be distributed following the press conference on Wednesday, August 20. After that, inquiries should be directed to Jerry Kallman, Kallman Associates, 30 Journal Square, Jersey City, N. J. 07306. Phone 201-653-3304.



GULF STREAM DRIFT MISSION REPORT

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BEN FRANKLIN DRIFT MISSION CHRONOLOGY.

At 8:56 P.M. (EDT) July 14, Grumman Aerospace Corporation's research submarine Ben Franklin slipped beneath the surface of the Atlantic off the coast of Palm Beach, Fla.

Its mission: to investigate the secrets of the Gulf Stream as it drifted northward at depths of 600-2,000 feet; to learn the effects on man of a long-duration, closed-environment stressful voyage; to demonstrate the engineering-operational concepts of longterm submersible operation, and to conduct other scientific oceanographic studies.

This longest privately-sponsored undersea experiment of its kind ended more than 30-days and 1,444 nautical miles later, when the Franklin and its crew of six surfaced some 300 miles south of Halifax, Nova Scotia, at 7:58 A.M. August 14. Both craft and crew were A-OK.

Following is a capsule chronology of the epoch voyages:

Day 1 (7/14) Ben Franklin departs Port of Palm Beach, 10:40 A.M., is towed 19-miles offshore and dives at 8:56 P.M. to 1,800-feet.

Day 2 (7/15) At 1:15 A.M. Franklin rises 25-feet off bottom to begin northward drift, conducting bottom reverberation experiments.

Day 3 (7/16) Drifting faster than expected, Franklin's crew radios best wishes to Apollo astronauts about to blast off for the moon.

Day 4 (7/17) All crewmen, save Aebersold, have head colds; while the nation swelters, temperature inside Franklin is a cool 62-degrees. Scientific program progressing nicely.

Day 5 (7/18) Decision to continue for full mission is affirmed; Franklin passes 100-hour mark, bettering own submerged record.

Day 6 (7/19) Colds responding to medication and advice from MD on surface ship; broadbilled swordfish attacks Franklin; neither combatant suffers injury.

Day 7 (7/20) NASA experiments progressing nicely; Franklin well within power budget.

(MORE)

FRANKLIN CHRONOLOGY 2-2-2

- Day 8 (7/21) Biggest problems aboard-clogged sink drain, broken head pump handle.
- Day 9 (7/22) Sonar warns of obstacles on seafloor, sub rises 100-feet off to safely pass.
- Day 10 (7/23) Sub completes 24-hour bottom photo-making cruise, first time ever done.
- Day 11 (7/24) Vertical waves throw sub off course; temperature drops to 57 degrees.
- Day 12 (7/25) Discover hilly seafloor not on charts; Deep Scattering Layer absent.
- Day 13 (7/26) Franklin expelled from stream, surfaces for tow, hatches stay sealed.
- Day 14 (7/27) Tow completed, sub dives to 1,000-feet, continues northward drift.
- Day 15 (7/28) Crew resumes scientific activities; life support systems working flawlessly.
- Day 16 (7/29) Navy ship Lynch conducts acoustic experiments with Franklin; ambient light and bottom reverberation tests also completed.
- Day 17 (7/30) Crew regarding chores now as "routine"; taped music, reading take up leisure.
- Day 18 (7/31) Indications sub caught in another eddy, 49 miles southeast of Cape Hatteras.
- Day 19 (8/1) Franklin avoids eddy; Gulf Stream starts sweeping vehicle in easterly direction.
- Day 20 (8/2) Crew alerted to tropical storm Anna brewing off Cape Hatteras.
- Day 21 (8/3) Light brush with storm; sharks sighted, dolphin sounds and whale calls recorded.
- Day 22 (8/4) Barracuda, swarms of plankton sighted underwater; one-inch specimen caught.
- Day 23 (8/5) Drift speed greater than anticipated, exceeds 2.5 knots; sub at 600 feet.
- Day 24 (8/6) Franklin passes 1,000-mile mark; tuna seen clearly in natural light at 600-feet.
- Day 25 (8/7) Speed now about 3 knots; stability problem develops, Kazimir has theory on it.
- Day 26 (8/8) Franklin now 400-miles east-southeast of Grumman HQ, Bethpage, L.I.
- Day 27 (8/9) Sub dives to 1,800 feet, conducts acoustical experiments, measures drift.
- Day 28 (8/10) Crewmen plan for "splash-up" Thursday, Aug. 14.
- Day 29 (8/11) Cruising at 1,000 feet, Franklin continues marine biological experiments.
- Day 30 (8/12) Sub now 550-miles east-southeast of Grumman, Bethpage; spirits are "high".
- Day 31 (8/13) Coast Guard cutter Cock Inlet arrives on scene; final surfacing plans begin.
- Day 32 (8/14) Franklin splashes up 300-miles south-southeast of Halifax, Nova Scotia, at 7:58 A.M.



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