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The Apollo 11 command module capsule is hoisted onto its recovery vessel, the aircraft carrier USS Hornet. NASA Photo

# Saving Apollo 11

By Barbara Honegger

How a Top Secret Satellite and Fast-Thinking Navy and Air Force Weathermen Saved the Apollo 11 Astronauts from Disaster

**I**t was one of those turning points in history where the fate of the world hung in the balance. The “Eagle” had successfully landed, Neil Armstrong had taken his “one small step for man,” and the Apollo 11 Moon landers were speeding back towards Earth to a hero’s welcome. But this “giant leap for mankind” would have ended in disaster, not ticker tape parades, placing the U.S. space program in jeopardy, had it not been for the courageous actions of two fast-thinking weathermen — Navy CAPT Willard “Sam” Houston and Air Force Maj. Hank Brandli.



# Saving Apollo 11

CAPT Houston, a former meteorology student and instructor at the Naval Postgraduate School, had been moved by the Navy into just the right place at the right time, with just the right classified knowledge, to save Apollo 11's astronauts from a watery Alamo. Pulled prematurely from a tour in Rota, Spain, Houston had taken command of Fleet Weather Central, Pearl Harbor, just 48 hours before the launch of the historic first Moon landing mission.

More importantly, CAPT Houston was the only man in the Navy who had worked directly with the top secret Corona Air Force spy satellite, knew what it could deliver, and knew there was an imagery read out station at Hickam Air Force Base nearby. Out of an abundance of caution, as the Apollo 11 astronauts were hurtling towards Earth, he decided to double check the weather at the Pacific Ocean splashdown site.

"When I arrived in Hawaii, I still had my top secret clearance from having worked in the Joint Meteorological Satellite Program Office at U.S. Air Force headquarters in Washington in 1964 and '65," Houston recalled. "The Air Force spy satellite program was kept secret from the other branches of government. We were in the Cold War then, and technology was closely guarded. I knew Corona's orbit would take it over the splashdown area, and wanted more information."

## "The Eagle is Screaming!"

"When I got to the read out station, Maj. Hank Brandli literally yanked me through the door," Houston recalled. "The classified images showed all the signs of a major tropical storm forming over the splashdown site, but due to security and the chain of command, he was locked in and couldn't tell anyone. I'd arrived just in time."

"It was a crazy situation," the Air Force meteorology special projects officer remembered. "With just 72 hours to go, I had all these classified photos of a deadly 'Screaming Eagle' thunderstorm with tops at 50,000 feet forming over exactly where I knew the Apollo 11 astronauts were going

to come down that would have ripped their parachutes to shreds.

"Without parachutes, they'd have crashed into the ocean with a force that would have killed them instantly. I was the only person who knew this and, because the spy program and its technology were strictly classified, I couldn't warn NASA."

But Houston could.

## Laying it All on the Line...by Line

Brandli quickly showed Houston the latest secret satellite images, which came in line by line...by line.

"I said, 'Captain, this storm will move west at five degrees a day and burst into a monstrous thunderstorm directly over where the astronauts are slated to come down.' Fortunately, he believed me. It was also fortunate he already knew about the Corona program and the satellite's capabilities, or we would have been there for hours. As it was, it took only a fraction of the time."

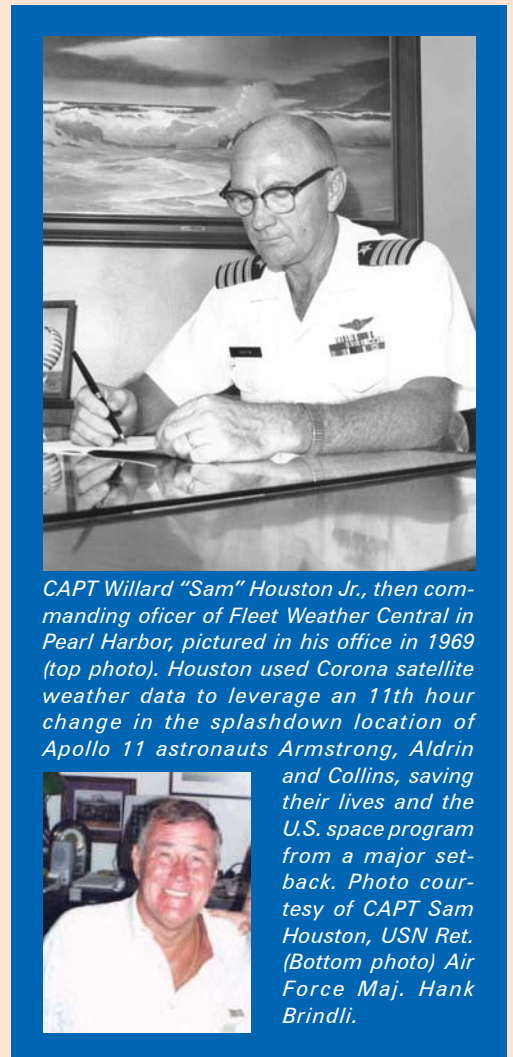
Houston recalled, "Seeing this, I made a split-second decision to go directly to Rear Admiral (Donald C.) Davis, the commander of Task Force 130 in charge of retrieving Apollo 11's capsule. Having seen the 'Special Access Required' images first hand, I was able to convince him we had irrefutable proof that the landing site needed to be changed."

"But Houston had to convince Admiral Davis without the photos, which were from a satellite that wasn't supposed to exist," Brandli stressed. "He couldn't tell him how he knew what he knew."

"Now you'll have to convince Washington," Davis told Houston at the end of his emergency visit to the recovery fleet commander's office, "but I don't think they'll have any choice."

Then the admiral added, "You'd better be right, young man!" To get the carrier USS Hornet to the new splashdown site in time, he was going to have to reroute the entire task force before receiving official orders.

"If I was wrong, and the orders didn't come, it would have been a career ender



CAPT Willard "Sam" Houston Jr., then commanding officer of Fleet Weather Central in Pearl Harbor, pictured in his office in 1969 (top photo). Houston used Corona satellite weather data to leverage an 11th hour change in the splashdown location of Apollo 11 astronauts Armstrong, Aldrin and Collins, saving their lives and the U.S. space program from a major setback. Photo courtesy of CAPT Sam Houston, USN Ret.

(Bottom photo) Air Force Maj. Hank Brindli.

for both of us, and we knew it," Houston said.

## "Houston, We Have a Problem"

"With Rear Admiral Davis already redirecting the carrier task force to the new location, I called the Corona satellite program headquarters to convince them they had to get NASA's top meteorologist to make this a national emergency," Houston added. "Though reluctant at first, as last-minute changes in (a spacecraft's) programming can introduce errors, he agreed, and the atmospheric re-entry point — and splashdown point along with it — was changed with only 72 hours to go."

On July 24, 1969, CAPT Houston watched on television from his home in Pearl Harbor as the capsule carrying the first men to walk on the Moon landed in perfect weather 215 miles downrange from their original splashdown site. Ticker tape fell like rain, America pulled ahead of the Soviets in the space race, and the West won the Cold War.

That day, the military sent planes to the original ocean landing site and found exactly what

Hank Brandli had predicted — violent thunderstorms that would have ripped the astronauts' parachutes to shreds.

For 30 years, CAPT Houston and the man who'd yanked him into the Corona read out room at Hickam Air Force Base, Maj. Brandli, kept the secret — along with Rear Adm. Davis and CDR Spanagel.

Finally, when President Clinton declassified the Corona project in 1995, Houston was able to reveal his Navy Commendation Medal for saving Apollo 11, from then Chief of Naval Operations ADM Elmo R. Zumwalt, Jr.

"Captain Houston's outstanding proficiency in weather forecasting was instrumental in averting what could have been a major tragedy and severe setback to this country's manned Moonflight program," Zumwalt wrote in awarding Houston the medal (gold star in lieu of second award) for his heroic actions.

"His timely warning to Commander Task Force 130 of intense thunderstorms forecast to be over the Apollo 11 landing site resulted in movement of the site 200 miles to the northeast where a smooth let-down and landing were accomplished."

After heading Fleet Weather Central Pearl Harbor for another year after saving the Apollo 11 astronauts, CAPT Houston became the second commanding officer of Fleet Numerical Weather Central (NMWC) in Monterey, Calif. NMWC became the Navy's Fleet Numerical Meteorological and Oceanographic Center, co-located in Monterey with the Naval Postgraduate School, where Houston had graduated and been an instructor.

### What If...?

"It was a huge undertaking to move the recovery carrier fleet and convince the powers that be to change the landing site," Brandli said. "Houston did a hell of a job. I often wonder, if it had been anyone else, would it have happened the same way?"

"When you look back," Houston agreed, "so many things had to happen to make it come out right."

What if...CAPT Sam Houston hadn't become the commanding officer of Fleet Weather Cen-

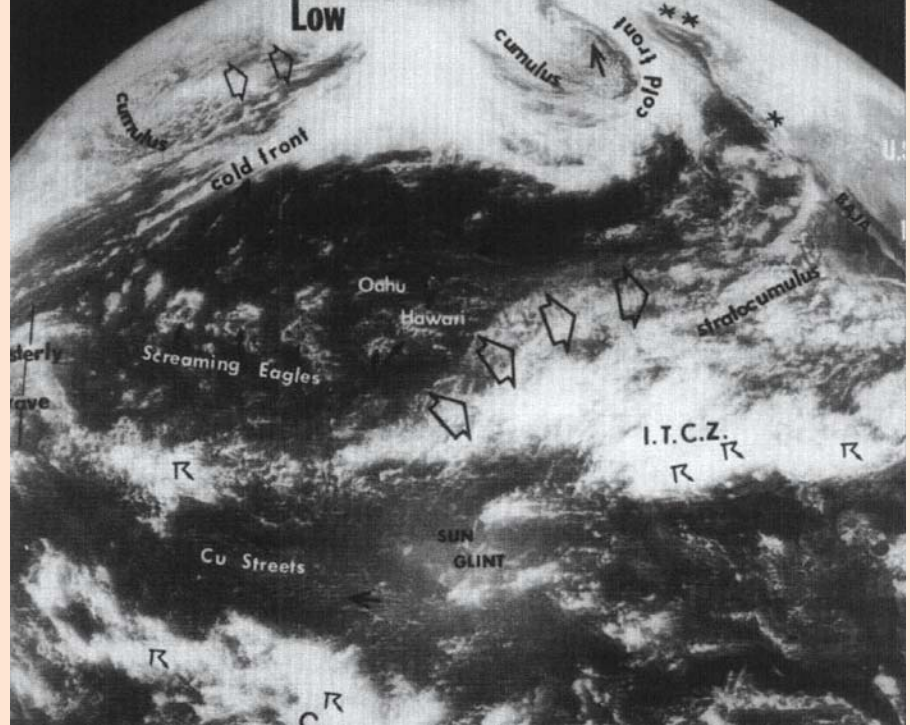


Photo Courtesy of Maj. Hank Brandli, USAF Ret.



NASA Photo

**With access to classified Corona satellite images, Air Force Maj. Hank Brandli pinpointed predictive "Screaming Eagle" cloud formations (top photo) that would explode into deadly thunderstorms over Apollo 11's scheduled splashdown site. Decisive actions by Maj. Brandli and CAPT Houston helped ensure that Americans would in fact celebrate the return of the Apollo 11 astronauts, pictured at left during a ticker tape parade in New York City.**

tral, Pearl Harbor only 48 hours before Apollo 11's launch?

What if...he hadn't been the only naval officer to have worked in the top secret Joint Meteorological Satellite Program Office at Air Force headquarters, where he was cleared for Corona?

What if...he hadn't retained his Corona clearance?

What if...he hadn't known there was a Corona read-out office nearby?

What if...the Corona hadn't orbited over the splashdown site?

What if...Maj. Brandli hadn't been following the formation of a "Screaming Eagle" over the site?

What if...Rear Adm. Davis hadn't agreed to redirect the entire recovery task force before receiving official orders to do so, on faith?

What if...CAPT Houston hadn't convinced NASA's top meteorologist to make changing the splashdown site a secret national emergency?

What if...Maj. Brandli hadn't prayed for a way to save Apollo 11?

What if...CAPT Houston hadn't appeared at his door?

Asked if he thinks God may have had a hand in what happened on July 24, 1969, Houston smiles, silently gets up, and pulls a well-worn volume from the shelf. It's a pop-up book, published by his daughter, with a dozen "God's Eye View" 3-D weather maps. The map pieces flip over, one by one, then lie flat together, revealing quotes from the Book of Job. In the quotes, God berates Job for his impertinence in questioning God's fairness, and reminds him of His absolute control over all of nature.

"No one speaks to God more than the meteorologist," Houston said, with a twinkle in his eye. "Just ask Hank Brandli."

*Author Barbara Honegger is a senior military affairs journalist with the Naval Postgraduate School's Public Affairs Office in Monterey, Calif.*