

E/V Nautilus Locates Downed Turkish Jet **July 11, 2012**

Request from the Turkish Government

On June 22nd, a Turkish Air Force RF-4E Phantom jet piloted by two Turkish Air Force officers was reportedly shot down by Syrian air defense off the coast of Syria.

Later that day, the U.S. Ambassador to Turkey in Ankara, Francis J. Ricciardone, at the request of the Turkish Foreign Ministry called Dr. Robert D. Ballard while he was on vacation in Jackson Hole, Wyoming, to ask his assistance in locating the lost aircraft and its two pilots at the request of the Turkish Government.

Last year, Ambassador Ricciardone had visited Dr. Ballard aboard his exploration vessel E/V Nautilus while it was imaging ancient shipwrecks off Bodrum, Turkey, where Nautilus has been based for the last three years. Ricciardone knew Nautilus was outfitted with advanced search and recovery technology capable of working in 4,000 meters of water. He also knew that the reported water depth in the area where the downed aircraft now rested was close to 1,300 meters.

Although the Turkish Navy has search sonars capable of reaching that depth, they lacked the sophisticated remotely operated vehicle technology needed to visually search the seafloor using high definition color cameras to investigate suspected sonar targets and, if necessary, recover objects from the bottom.

Equally important, Ambassador Ricciardone knew Nautilus was at the moment in Istanbul mobilizing its expedition team along with Turkish scientists to begin its annual exploration in the Black and Mediterranean Seas where Dr. Ballard has been working for more than 13 years.

The Ocean Exploration Trust (OET) and Dr. Ballard as its President operate E/V Nautilus. OET is based in Connecticut and partners with the Ocean Exploration Center (OEC) at Mystic Aquarium and its parent organization the Sea Research Foundation (SRF) that owns much of the exploration technology aboard E/V Nautilus. Dr. Ballard is President of OEC and Chief Scientist of SRF.

Other critical players involved in the decision to take on this mission included the University of Rhode Island (URI) and the expedition sponsors, the Office of Naval Research (ONR), and the Office of Ocean Exploration of the National Oceanic and Atmospheric Administration (NOAA). Dr. Ballard is Director of URI's Center for Ocean Exploration at their Graduate School of Oceanography (GSO) where many of Nautilus' scientists, students, and engineers are located.

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Dr. Ballard also immediately contacted Vincent Viola, a New York Businessman, graduate of West Point, founder of its Combating Terrorism Center, and owner of Nautilus. Mr. Viola's interest in supporting Dr. Ballard's work stems not only from Dr. Ballard's mission to exploration the unknown regions of the world but for its ability to exert "soft power" in critical regions of the world.

E/V Nautilus has a long history of working with scientists and engineers from all over the world. Since beginning its first field season in the summer of 2009, E/V Nautilus and its Corps of Exploration has included scientists, students, and engineers from more than twenty countries, including Turkey, Greece, Italy, Cyprus, Israel, Spain, and Portugal. It even had permission to explore off the coast of Libya last year. As a result, it has been able to move seamlessly between these various countries even at times of rising tensions between them.

Equally important, E/V Nautilus is registered in the neutral country of St. Vincent and the Grenadines and hosts an international crew drawn from Russia, Ukraine, Ireland, Turkey, and the Philippines. At any one time, you may hear conversations being carried out in the ship's mess in five to six different languages.

By June 29th, permission from all of the parties involved had been secured and on June 30th the Turkish Foreign Ministry spokesman informed the media according to this press statement, which had been the sole source of all news releases to that point in time.

Once the decision was made by all interested parties to assist in this effort, it took E/V Nautilus three days to transit from Istanbul to the search and rescue (SAR) area off the coast of Syria while the Turkish Navy continued its ongoing effort.

E/V Nautilus to Assist in Search for Downed Turkish Jet

ISTANBUL – Friday, June 30, expedition leaders from the research ship EV *Nautilus* confirmed that the vessel and its expedition team will assist in the ongoing search for a Turkish jet that crashed into the sea off the coast of Syria on June 22. EV *Nautilus* was in Istanbul preparing to embark on a two-month exploration expedition in the Black, Aegean and Mediterranean Seas, when the request for participation in the search came from officials in the Turkish Government.

The 212-foot exploration vessel *Nautilus* carries multiple scientific survey tools on board, including two Remotely Operated Vehicles (ROVs) and a towed side-scan sonar system, which could greatly aid in locating and documenting the missing aircraft. The ship is a privately-owned and operated vessel registered in St. Vincent and the Grenadines. The *Nautilus* Exploration Program, which operates *Nautilus*, was founded in 2008 by Dr. Robert Ballard, discoverer of the *Titanic*. Dr. Ballard has conducted multiple expeditions off of the Turkish coasts and elsewhere in the Mediterranean Sea for more than 15 years.

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In responding to the request for participation, *Nautilus* is postponing its previously planned scientific exploration cruise and departed for the area of the search on Friday evening June 29. Immediately following the search operations, *Nautilus* will return to its previously planned scientific expedition in the Black Sea.

Nautilus management is working closely with the U.S. State Department and the Turkish Ministry of Foreign Affairs, which have assured peaceful operations. The Syrian government, which has acknowledged *Nautilus*' involvement in the search effort, is currently cooperating with the Turkish government on the search and that cooperation is expected to continue.

For more information, please contact:
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[Press inquiries regarding *only* our postponed science expedition can be sent to Liz Smith, *Nautilus* Communications Coordinator, at lsmith@oceanexplorationtrust.org.]

Search and Recovery Effort

On June 22nd, one hour and forty minutes after Turkey's jet was reported to have been lost, a Turkish helicopter from the Turkish frigate TCG Gokçeada reported seeing an oil slick in the water close to the point at which radar contact was lost with the jet.

This observed oil slick location agreed with the reported location of wreckage collected by a Syrian warship shortly after the crash occurred that included the flight helmets of the Turkish pilots, pilot boots, survival kit and other associated floating debris.

Between June 22 and June 26, the Turkish Frigate TCG Gokçeada under the command of Commodore Cihat Yayci, along with one fast attack boat, one patrol boat, two Coast Guard vessels, one plane, and four helicopters searched a 70 by 23 mile area and recovered 30 floating pieces of debris associated with the downed aircraft that included pieces of the wing and fuel tank, pilots boot, floating metal box, and tail piece.

On June 26th, the Turkish Navy survey ship A-599 TCG Çeşme arrived on scene. This vessel is equipped with a 100 kHz side-scan system capable of reaching the water depth at the suspected location of the downed plane. The ship is also outfitted with a

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hull mounted multibeam sonar system capable of making a detailed bathymetric map of the ocean floor, which would greatly assist the subsequent search efforts.

Between June 26 and July 2nd, the TCG Çeşme and its team conducted a bathymetric survey of a three by five nautical mile area centered on the reported impact site and then conducted a series of seventeen systematically spaced lines running parallel to the bottom contours in the central portion of the search area measuring 1.9 by 2.3 nautical miles for 197 hours. During this effort, eight possible contacts on the bottom were detected.

Nautilus joins the Search and Recovery

On July 2, E/V Nautilus under the leadership of Dr. Katy Croff Bell, Vice President of OET and Chief Scientist of the Nautilus Exploration Program, arrived off the coast of Turkey near its border with Syria and conducted the first test dives of the season for its primary search and recovery vehicle system Argus/Hercules.

Nautilus has a sophisticated "dynamic positioning" system that makes it possible to operate at very slow speeds and to "hover" over the bottom for long periods of time, working 24 hours a day.

Suspended beneath Nautilus on a high bandwidth fiber-optic cable is the remotely operated vehicle (ROV) Argus. Argus is directly connected to the more sophisticated ROV Hercules with a separate neutrally buoyant cable.

Argus is outfitted with powerful underwater lights to illuminate an otherwise dark undersea environment and a high-resolution color camera system to observe Hercules while it works in the illuminated area below Argus. Hercules is similarly equipped with lights and a high definition video camera, and is also capable of collecting objects from the seafloor.

The team aboard Nautilus operates both vehicles and the ship from a Command Center aft of the bridge. It takes three watches, each consisting of 7 engineers, technicians, and scientists working on 4-hour on/8-hour off shifts to operate this entire search and recovery technology.

On July 3rd, Dr. Ballard and Mr. Viola arrived in Adana, Turkey, where Turkish Naval personnel met them, as well as Ambassador Çağatay Erciyas who is Deputy Director General for Maritime and Aviation Affairs for the Turkish Ministry of Foreign Affairs and the on-scene representative for the Turkish Government.

They were then transported to the Naval Port of Mersin where they boarded the previously mentioned Turkish Frigate TCG Gökçeada and immediately were

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underway to rendezvous with E/V Nautilus, which was now conducting its second test dive in Turkish waters near its border with Syria. During this transit Commodore Cihat Yayci gave a detailed briefing covering the facts to date that are stated above.

Nautilus Locates the Jet Wreckage

Once the TCG Gokçeada met up with the Nautilus, Dr. Ballard, Mr. Viola, Ambassador Erciyes, Commodore Yayci, Colonel Yaşar Kadioğlu from the Turkish Air Force, and Lt. Ömür Özdemir from the Gokçeada were transported by the Commodore's launch to Nautilus while the two ships were steaming to the site of the crash off Syria where Turkish and Syrian warships were now stationed.

Based upon a joint analysis of the sonar data collected by the Turkish Navy survey ship A-599 TCG Çeşme, it was decided to initially inspect "Target #8"; a large, highly reflected object rising above the bottom with a length of approximately 7 meters and a width of 3 meters.

The Argus and Hercules vehicle system was launched soon after arriving on scene. The vehicles proceeded down to a depth of approximately 1280 meters, acquired Target #8 on their separate forward scanning sonars, and moved forward until the target was acquired visually. It was quickly determined that the target was a standard intact metal shipping container that for some unknown reason had been dropped from a passing ship.

Without recovering the vehicles, the Nautilus then turned south-by-south east and proceeded toward the location of the reported oil slick spotted by the Turkish helicopter 1 hour and 40 minutes after the crash and where Target #7 was detected during the sonar search effort.

As Argus and Hercules approached this location, they began to see pieces of debris associated with the lost aircraft. During the evening of July 3rd and into July 4th, working around the clock, Nautilus and its Corps of Exploration systematically explored the debris field.

During this search, the vehicles encountered hundreds and hundreds of pieces of debris of all sizes, which is imaged with its high-resolution color video cameras. During this detailed survey, specific pieces of the aircraft were recovered. While this effort was underway, the bodies of the two Turkish pilots were located resting on the seafloor amongst the debris.

Recovery of the Pilots

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The decision was made by the Turkish Government to recover the bodies as soon as possible and preparations began immediately to construct what is called an "elevator" that has been used many times by the team aboard Nautilus to recover scientific samples and archaeological artifacts from the ocean floor.

An elevator is a free-falling device that consists of an aluminum framed basket with net meshing on the bottom and a series of glass ball floats to provide buoyancy on the top, steel weights to carry it to the seafloor, and a tracking transponder to guide the vehicles to its final location once it lands on bottom.

By the evening of July 4th, the elevator was ready and a test recovery was made to show the Turkish recovery team, which was now aboard Nautilus, how we planned to recover the bodies.

After this test effort the elevator was deployed, landing approximate 350 meters from where the body of the junior officer Lieutenant Hasan Huseyin Aksoy was located.

The Argus and Hercules vehicles were then launched, reached the bottom an hour and half later, acquired the elevator's tracking pinger, and then homed in on that pinger until it acquired the elevator visually.

Using its two manipulators, the Hercules pilot lifted the elevator and carried it over to the location of Lt. Aksoy's body and rested the soft net meshed platform less than $\frac{1}{2}$ meter away. The pilot of Hercules then lifted Lt. Aksoy's body by the pilot's two flight straps attached to his flight suit and placed him in the soft net meshing and lowered a second soft net meshing over the top of his body completely covering his body.

After that operation was complete, the Hercules pilot released the steel weights suspended beneath the elevator and the elevator rose to the surface, arriving in less than 45 minutes to a waiting recovery boat commanded by the Captain of Nautilus.

The recovery boat approached the elevator, whose top float was resting less than $\frac{1}{2}$ a meter above the water surface. Two Turkish Navy divers descended to the net covered platform suspended two meters below the floats to secure the upper and lower net-meshed components encircling Lt. Aksoy's body prior to lifting the elevator out of the water.

While this operation was underway, Nautilus used its dynamic positioning system to place Nautilus upwind from the elevator and recovery boat to dampen what was a mild sea, making it a flat calm.

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Once in position, the recovery boat and divers moved the elevator to the aft port quarter of Nautilus where the ship's crane was used to lift the elevator out of the water to an awaiting Turkish recovery team under the direction of a Turkish Naval physician.

At this point in time, the Turkish authorities took full control of the operation as Lt. Aksoy was given full military honors and immediately transferred to the Turkish Frigate TCG Gokçeada under the leadership of Commodore Yayci.

While this transfer was being made, the elevator was readied for a second launch. This time it landed on the bottom 200 meters from the body of senior officer Captain Gokhan Ertan and a similar recovery effort was successfully completed.

Dr. Ballard and Mr. Viola were then transported to Gokçeada where Captain Ertan and Lt. Aksoy received full military honors from the ship's crew before being airlifted ashore by a military helicopter.

Nautilus Operations Complete

Dr. Ballard and Mr. Viola were then transported by military helicopter to Adana where Dr. Ballard briefed the Naval Authorities responsible for this region of the Mediterranean Sea.

Ambassador Erciyes and Commodore Yayci returned to Nautilus to work with Dr. Bell to complete the survey of the lost site and to collect additional pieces of the aircraft.

Dr. Ballard and Mr. Viola then flew to Istanbul where Dr. Ballard briefed Vice Admiral Bulent Bostanoğlu, Commander of the Turkish Northern Sea Area before they returned the next day, July 6, to the United States.

Dr. Bell and the Corps of Exploration aboard Nautilus completed their work at the crash site and left the area for the Black Sea, to begin their exploration program for this summer season which can be watched live on www.nautiluslive.org beginning July 9, 2012.