

# A Look Back...

OPERATION TOMODACHI,  
12 MARCH—4 MAY 2011, AND AFMC'S AIR  
FORCE RADIATION ASSESSMENT  
TEAM'S RESPONSE



BY: RAY ORTENSIE  
DEPUTY DIRECTOR, HQ AFMC HISTORY OFFICE



## OPERATION TOMODACHI

At 1456L off the east coast of Miyagi Prefecture a 9.0 earthquake shook Japan on 11 March 2011 causing massive damage and sparking a tsunami along the eastern coast. Named the Great East Japan Earthquake (the fourth largest earthquake in the world and the largest in Japan since instrumentational recordings began in 1900), it damaged 500 miles of seashore on the east coast, took over 15,800 lives, caused 6,000 injuries, with nearly 354,000 houses completely or partially destroyed, and forced a \$256 billion economic losses. The devastating tsunami generated by the earthquake affected the entire Pacific with the highest wave, 38.9 meters, recorded in the Iwate Prefecture. Tidal recordings in Japan ranged from one to seven meters with 2.5-meter waves reaching the Kuril Islands in Russia and two-meter waves observed in South America, Hawaii, and the West Coast of the United States.<sup>1</sup>

Of importance, Japan operated a number of nuclear power facilities affected by the earthquake and the follow-on tsunami. Although successfully shutdown with the automatic systems installed as part of their earthquake designs, the natural disaster would end up wreaking havoc on these systems. Facilities took damage differently with the most serious issues occurring at Tokyo Electric Power Company's Fukushima Dai-ichi facility. The automatic systems at Fukushima successfully deployed all control rods upon the detection of the earthquake and all emergency power generators operated as designed. Nevertheless, engineers designed the Dai-ichi facility to withstand tsunami waves of 5.7 meters high, but within 46 minutes of the earthquake, the facility received the first of a series of waves. Later surveys estimated these waves at over 14 meters high. Water reached areas deep within the facility resulting in all power sources to fail except one emergency generator staying online and structural damage, leaving little hope.<sup>2</sup> Operators at Fukushima faced a "catastrophic, unprecedented emergency scenario with no power, reactor control or instrumentation." Despite their efforts to cool the reactor units throughout the day and night, a series of explosions occurred, causing radiological contamination to spread into the environment. Within hours, the Government of Japan requested emergency assistance with the US Department of Defense responding with a Humanitarian Assistance and Disaster Response team consisting of various elements across DoD, Department of State, United States Agency for International Development, the US military,<sup>3</sup> and other US government agencies and non-government organizations. An unknown leader named the team TOMODACHI ("friend" in Japanese).<sup>4</sup>

March 11<sup>th</sup> marks the tenth anniversary of this devastating natural event and while many of us in Dayton, Ohio were far removed from this event, a select few from Air Force Materiel Command and assigned to the Air Force Radiation Assessment Team (AFRAT) answered the call. Members of USAF School of Aerospace Medicine's Air Force Radiation Assessment Team (AFRAT), a team of worldwide deployable health physicists, industrial hygienists, and laboratory technicians often seen as a "team of elite radiological technicians," deployed to Yokota AB, Japan. For years, they had trained and prepared for just such an event, and as expected, they hit the ground running. The 36-member team arrived on 21 March and remained in Japan until 27 May with the mission to determine the level of contamination from the damaged nuclear plant. During this time, the team conducted 52-radiation reconnaissance and monitoring missions while monitoring the condition of more than 700 military personnel supporting the relief efforts. This Look Back is a photo essay of AFRAT's deployment and activities during Operation TOMODACHI, ten years ago this week.<sup>5</sup>

---

### Endnotes

1. PACAF/HO, "Operation TOMODACHI," excerpt from (S//NF) 2010-2011 PACAF History, pp. 86. (Information used is Unclassified). Hereafter cited as PACAF. Wada, Shuichi. "Operation Tomodachi in Miyagi Prefecture: Success and Homework," *Center for Strategic & International Studies*, 21 December 2011, <https://www.csis.org/analysis/japan-chair-platform-operation-tomodachi-miyagi-prefecture-success-and-homework>. Accessed 6 January 2021.

2. PACAF, 86-7. See Jennifer D.P. Moroney et al. "Chapter 5: The Great East Japan Earthquake/Operation Tomodachi (Japan)," in *Lessons from Department of Defense Disaster Relief Efforts in the Asia-Pacific Region*, Santa Monica: RAND, 2013, pp. 85-107 for further discussion.

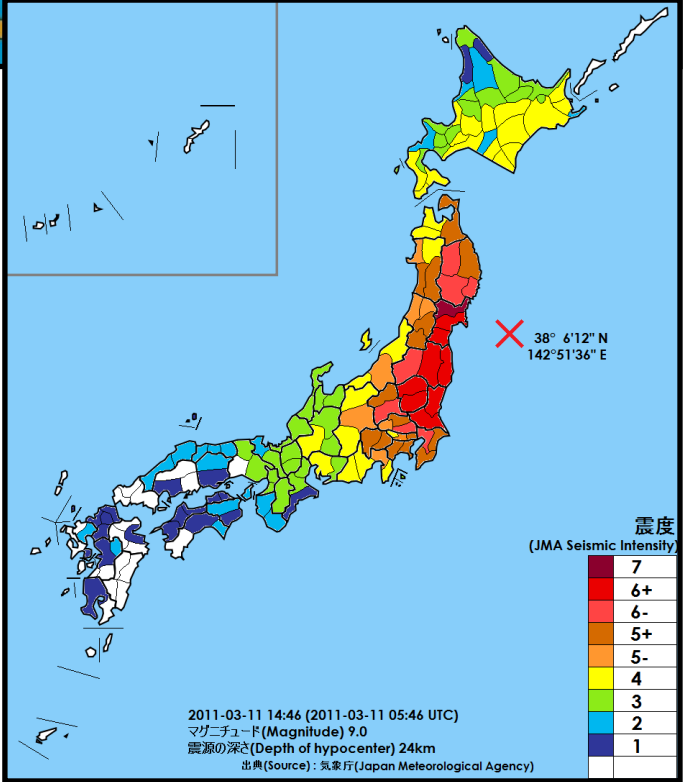
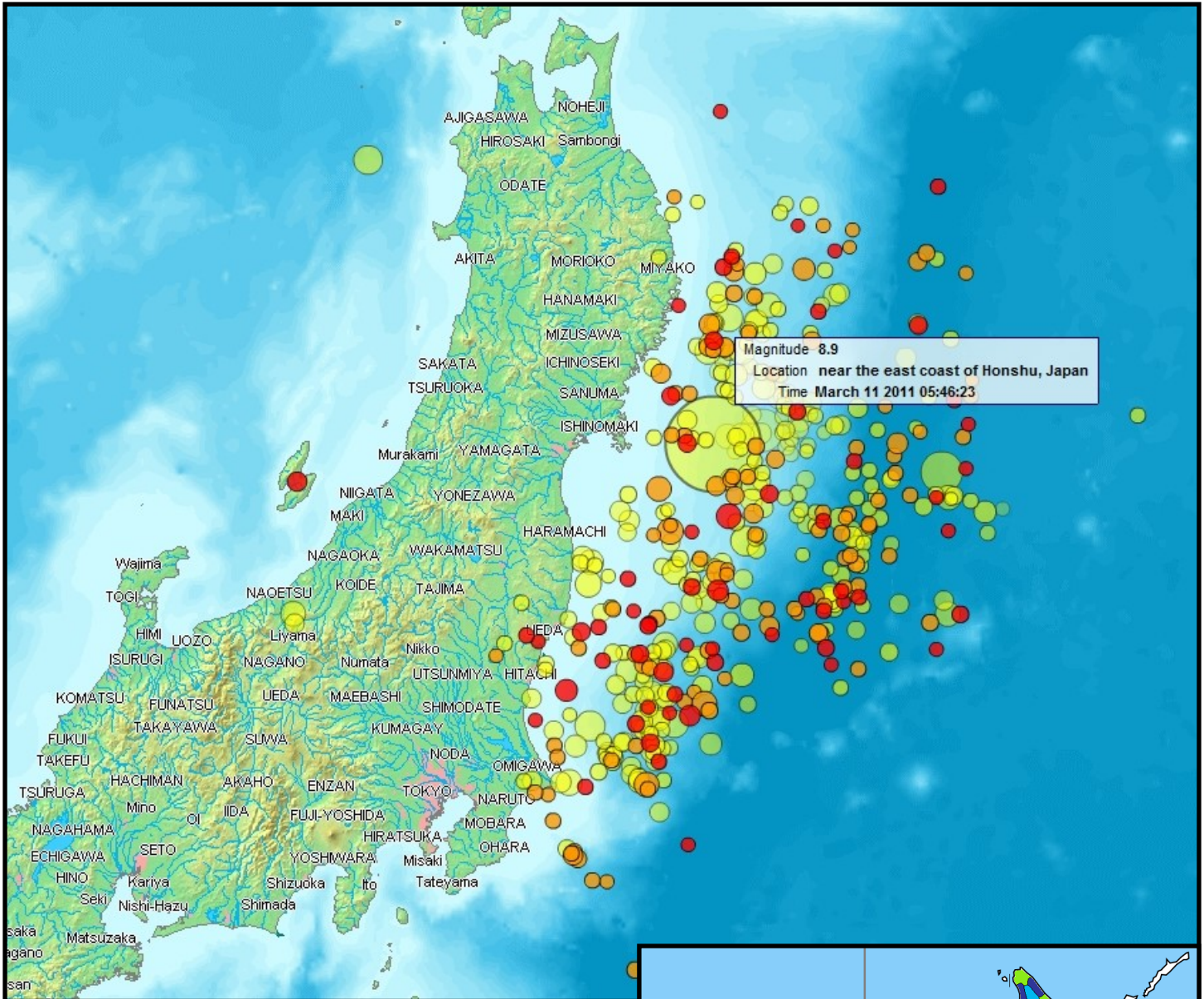
3. US deployed close to 24,000 personnel, 189 aircraft, and 24 Naval vessels in support of Operation TOMODACHI, Jennifer D.P. Moroney, et al. "Chapter 5: The Great East Japan Earthquake/Operation Tomodachi (Japan)," in *Lessons from Department of Defense Disaster Relief Efforts in the Asia-Pacific Region*, Santa Monica: RAND, 2013, pp. 86.

4. PACAF, 87-8. (U//FOUO) PACAF/13AF/A9L Collection Team, "Japan Earthquake and Tsunami Response (Operation TOMODACHI, Operation PACIFIC PASSAGE): Lessons and Observations Report," PACAF, 29 July 2011, p. 3. (Information used is Unclassified.)

5. Ball, Capt (Dr) Gregory (USAFR), 2011- Operation Tomodachi, Air Force Historical Support Division, 10 March 2016, <https://www.afhistory.af.mil/FAQs/Fact-Sheets/Article/690225/operation-tomodachi/>, Accessed 4 Dec 2020.



# OPERATION TOMODACHI



Top: Map of the Sendai earthquake and aftershocks until 14 March 2011 at 1120 local. The size of the circles represents the magnitude with the colors indicating the date: light green, 11 March; yellow, 12 March; orange, 13 March, and red, 14 March (Wikipedia Commons). Right: Seismic intensity of observations resulting from mainshock of the Tohoku earthquake on 12 March 2011 (Wikipedia Commons). Right: National Oceanic and Atmospheric Administration's tsunami energy map.



OPERATION TOMODACHI



US Air Force Photographs



OPERATION TOMODACHI





## OPERATION TOMODACHI



Top: Forklifts line the flightline at Misawa Air Base, Japan, waiting to offload cargo March 30. Since Operation TOMODACHI kicked off, Misawa AB received more than a million pounds of cargo in support of earthquake and tsunami relief operations (USAF photo/Staff Sgt. Rachel Martinez). Bottom: Humanitarian supplies are unloaded from a C-17 Globemaster III at Sendai Airport, Japan, on 20 March. The 517<sup>th</sup> Airlift Squadron from Joint Base Elemendorf/Richardson flew the first C-17 mission to Sendai in support of Operation TOMODACHI (USAF Photo/MSgt Jeremy K. Cross).

Opposite page. Top: Staff Sgt. Blake Landry, 36<sup>th</sup> Airlift Squadron loadmaster deployed a Davis Drifter Buoy from a C-130 Hercules off the eastern coast of Japan on 29 April 2011. The C-130 crew dropped seven buoys off the eastern coast of Japan to help Japanese and American scientists monitor ocean currents (USAF photo/Staff Sgt. Samuel Morse). Bottom: Capt Gabe Frusha, 36<sup>th</sup> Airlift Squadron C-130 Hercules Pilot, looks over a map with Capt. Andrew Milligan, 36<sup>th</sup> AS navigator, over the Pacific Ocean 29 April 2011. The C-130 crew dropped seven Davis Drifter Buoys off the eastern coast. (USAF photo/Staff Sgt. Samuel Morse).



OPERATION TOMODACHI





# OPERATION TOMODACHI





OPERATION TOMODACHI



Top: AFRAT "camp" at Yokota AB, Japan. AFRAT was co-located with the US Department of Energy's Federal Radiological Monitoring and Assessment Center (FRMAC) personnel with their office space a few feet away. Middle: AFRAT members in formation. Bottom: AFRAT members begin to set up camp at Yokota AB, Japan.



OPERATION TOMODACHI



Top: Staff Sgt. Kevin Rivera checks soil at Sendai Airport for possible contamination 5 April (USAF photo/Yasuo Osakabe). Bottom: Staff Sgt. Kevin Rivera checks radiation for service member at Onahama port, Fukushima Prefecture, 29 March (USAF photo/Yasuo Osakabe).



OPERATION TOMODACHI



Top: Technical Sgt. Jeremy Timmermeyer lands at Onahama port, Fukushima Prefecture by HH-60 Pave Hawk on March 28 (USAF photo by Yasuo Osakabe). Bottom: Staff Sgt. Kevin Rivera checks metals on the barge at Onahama port, Fukushima Prefecture, 29 March (USAF photo by Yasuo Osakabe).



## OPERATION TOMODACHI



Top: Senior Airman Anna Hurlbert, 18<sup>th</sup> Aerospace Medicine Squadron, uses a Radeco to monitor radiation levels in the air at Yokota Air Base, Japan, on 24 March 2011. Airman Hurlbert was on temporary duty from Kadena AB assisting Yokota's Medical Group to monitor base radiation levels in support of Operation TOMODACHI (USAF photo/MSgt Jeremy K. Cross). Bottom: Senior Airman Thompson Kongmany and Senior Airman Mark Williams, 374<sup>th</sup> Maintenance Squadron metal technicians, create a camera mount on 28 March 2011. Maintainers were tasked to create a mount for equipment that would monitor radiation levels near reactors at the Fukushima nuclear plant (USAF photo/A1C Andrea Salazar).





OPERATION TOMODACHI



Top: Staff Sgt. Kevin Rivera collects seawater sample at Onahama port, Fukushima Prefecture, 29 March (USAF photo/ Yasuo Osakabe). Bottom: Staff Sgt. Kevin Rivera (left) and Senior Master Sgt. Dean Kim use a sodium iodide detector to check for radiation at Sendai Airport on 5 April 2011. Sergeants Rivera and Kim checked for radiation in the air, soil, and vegetation (USAF photo/Yasuo Osakabe).





# OPERATION TOMODACHI



Top: Members of AFRAT test water samples for possible radiation exposure at Yokota Air Base, Japan on March 25. AFRAT supported Operation TOMODACHI by ensuring the local water supply was safe for use (USAF photo/A1C Andrea Salazar). Bottom: Containers filled with water from numerous local area awaiting to be examined inside the AFRAT laboratory. AFRAT consistently monitored elements from the surrounding areas of Yokota and Camp Zama for possible presence of radiation (USAF photo/A1C Andrea Salazar).





## OPERATION TOMODACHI

Top: Master Sgt. Ty Richards tests local water samples for radiation at Yokota AB on 25 March (USAF photo/A1C Andrea Salazar).  
Bottom: Staff Sgt. Socorro Guy (left) and Technical Sgt. Nancy Connell (right) test samples for radiation at Yokota AB.





OPERATION TOMODACHI



Top: Senior Airman Dustin Fugett prepares samples for testing. Bottom: Technical Sgt. Cesar Valverde and Staff Sgt. Kevin Rivera take a break from testing.





# OPERATION TOMODACHI



Top: Staff Sgt. Terry Shoup, Technical Sgt. Kevin Brown, and Staff Sgt. Samuel Ortiz from the Radio-analysis Section pose for a photo during a break. They helped to process over 1,000 environmental samples during AFRAT's deployment. Bottom: Technical Sgt. Cesar Valverde poses with a Captain from the Japanese Air Self-Defense Force.







Top: Staff Sgt. Kevin Rivera collects a vegetation sample at Sendai Airport 5 April 2011 (USAF photo/Osakabe Yasuo). Bottom: Staff Sgt. Kevin Rivera (left) and Senior Master Sgt. Dean Kim use a sodium iodide detector to check for radiation at Sendai Airport on 5 April 2011 (USAF photo/Yasuo Osakabe).

Opposite page: Air Force Radiation Assessment Team member performed radiological assessments at Sendai Airport in support of Operation TOMODACHI on 5 April 2011. A member holds their challenge coin during a break (USAF photo/Yasuo Osakabe).









# OPERATION TOMODACHI



Top: Technical Sgt. Cesar Valverde lines the inside of a HH-60 *Pave Hawk* for contamination avoidance. TSgt. Valverde also served as AFRAT's expert for radiological instrumentation calibration and repair. Bottom: Master Sgt. Nancy Connell conducts air sampling in base housing with the US Army.





OPERATION TOMODACHI



At Misawa AB, Japan, AFRAT advised radiological surveillance and screening throughout US military locations in Japan. Here, a US Navy Seahawk helicopter is screened for radiological contamination at Misawa AB.



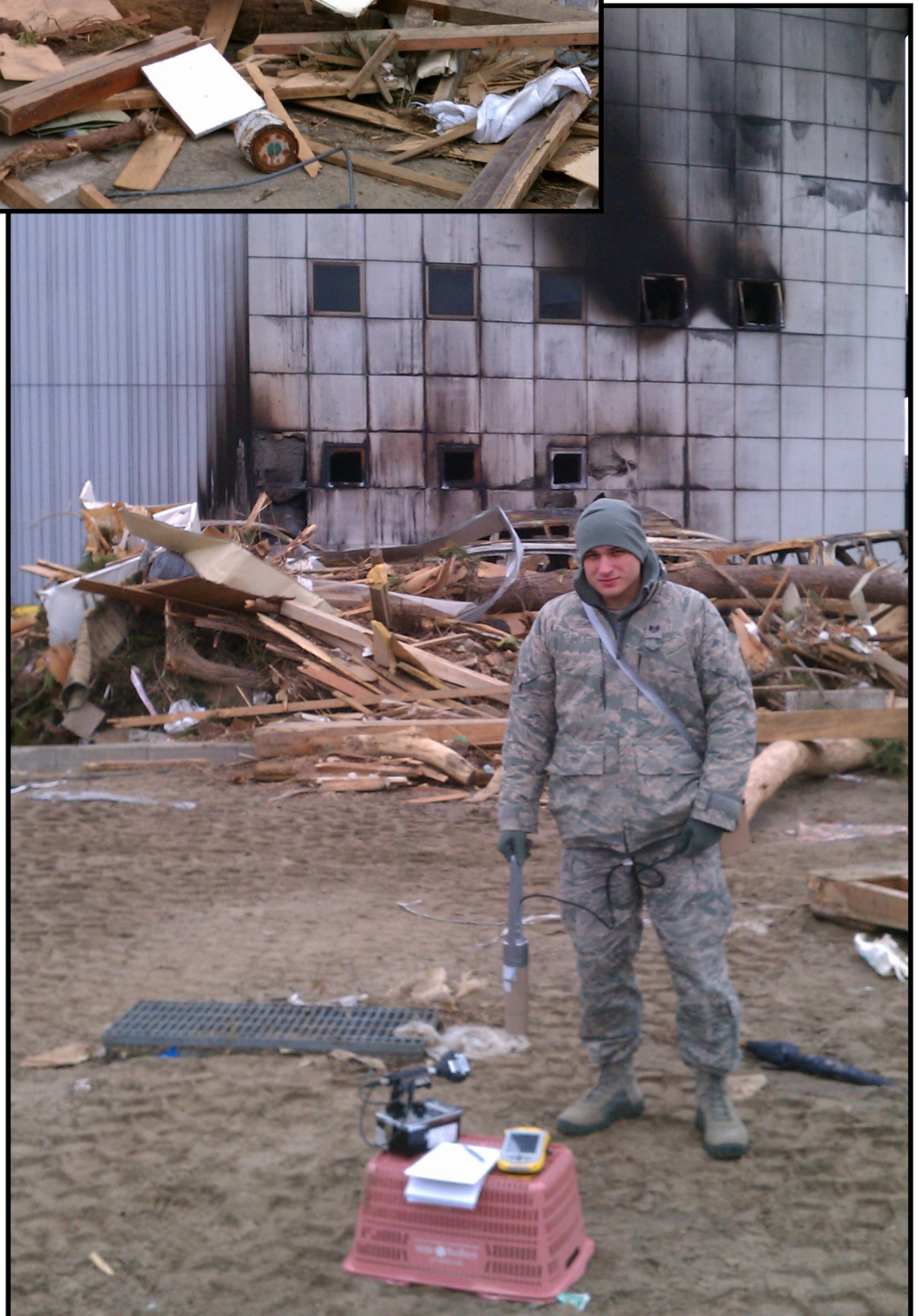






This page: Staff Sgt. Kevin Rivera conducts a radiological surveillance at Sendai Airport, approximately 60-miles north of Fukushima Dai-ichi. An important logistical hub, the airport reopened to limited traffic a month after the tsunami.

Opposite page: Technical Sgt. Jeremy Timmermeyer conducts radiological air sampling at Sendai Airport, approximately 60-miles north of Fukushima Dai-ichi. An important logistical hub, the airport reopened to limited traffic a month after the tsunami.





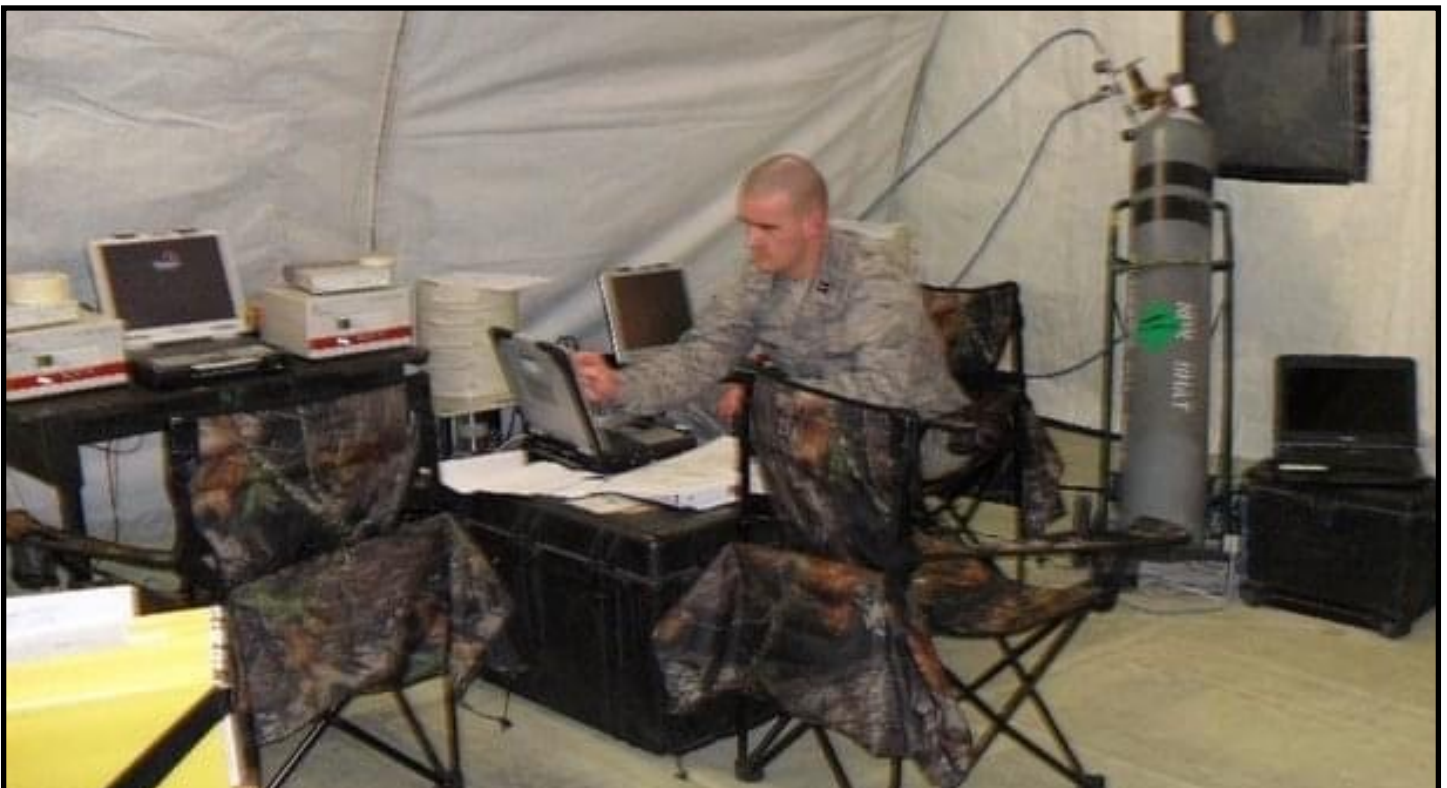




# OPERATION TOMODACHI



Top: AFRAT members take part in daily physical fitness while deployed. Bottom: Captain Eric Clinton, Lab Chief, looks over test results. Opposite page: Staff Sgt. Kevin Rivera (left) and Senior Master Sgt. Dean “Sunny” Kim at the Sendai airport. Note SSgt. Rivera is wearing dosimetry badges, which were used to track radiation doses of all AFRAT members during the deployment.





OPERATION TOMODACHI



Top: Staff Sgt. Soccoro Guy (left) and Technical Sgt. Nancy Connell, AFRAT Lab Day Shift.

Bottom: AFRAT traveling home after deployment. Master Sgt. Steve Bauer and Master Sgt. Dean "Sunny" Kim.





# OPERATION TOMODACHI



Operation 1000 Cherry Tree Project took place in November 2012 at Headquarters Air Force Materiel Command. Operation 1000 Cherry Tree was formed by Japanese-born Dayton businessman Alex Hara to thank American people for their assistance after the tsunami in his homeland. One hundred cherry trees were planted near the National Museum of the US Air Force in conjunction with the project.

Staff Sgt. Dakota Lima and Master Sgt. Nancy Connell joined in the formation for the event.





## AFMC History & Heritage Program

HQ AFMC/HO

4225 Logistics Ave., Room S133 • Wright-Patterson AFB 45433-5006 • DSN: 713-1797 • Comm: (937) 713-1797

For inquiries, contact: R. Ray Ortensie • For heritage and exhibit questions, contact: Jack Waid

E-mail: [HQAFMC.HO@us.af.mil](mailto:HQAFMC.HO@us.af.mil)