

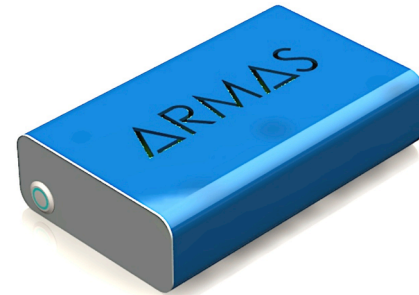
## **ARMAS FM5: monitoring aircraft radiation for business aviation**

*Dr. W. Kent Tobiska is the President and Chief Scientist of Space Environment Technologies (SET). Through his career at NOAA, UC Berkeley, Jet Propulsion Laboratory, Northrop Grumman, Utah State University, University of Southern California, and SET, he has been the Principal Investigator on numerous USAF, NASA, and NOAA projects. He chairs the AIAA Atmospheric and Space Environment (ASE) Committee on Standards (CoS) and is the lead U.S. delegate to the International Standards Organization for the space environment. He is a science advisory board member for NASA's Heliophysics Division and is a member of AGU, COSPAR, AIAA, AMS and ISO TC20/SC14 USTAG. He has authored/co-authored over 165 peer-review scientific papers as well as 10 books and major technical publications.*

Space Environment Technologies (SET) is the world's leading commercial provider of space weather services and products since 2001. SET pioneered multiple operational products and systems, including the first solar irradiance forecasts for NOAA, Air Force Space Command's NORAD catalog solar and geomagnetic forecasts, and the first space weather consumer app. In 2007, SET began working with NASA Langley Research Center scientists to develop the NAIRAS climatological global radiation model system and the ARMAS real-time dose rate data to feed it. Since 2011 SET is working with NASA's Armstrong Flight Research Center to demonstrate ARMAS. ARMAS now provides radiation "weather" from solar energetic particle (SEP) events due to solar flares and, similar to volcanic ash clouds, enables avoidance of higher radiation regions.

At NBAA 2015 SET introduces the first professional aviation, real-time, portable, radiation monitor, *Automated Radiation Measurements for Aerospace Safety Flight Module 5*. ARMAS FM5 allows a pilot or remote operations to monitor the radiation environment from all sources, not just gamma-rays as with existing detectors. This helps extend pilot/crew careers and strengthens passenger safety. Owners can avoid costly fleet disruptions due to grounding if crew exposures exceed monthly or annual radiation limits due to one severe solar event. ARMAS has flown successfully on over 100 NASA, NOAA, and NSF research aircraft flights since 2013. FM5 is FAA compliant as a stand-alone unit with no attachment to the plane. ARMAS FM5 contains a Teledyne micro dosimeter, GPS, Iridium, and Bluetooth chips in a rugged package slightly larger than a smart phone. Activating FM5 prior to boarding and with it stowed in an overhead bin, flight bag, or briefcase it measures the dose that crew and passengers receive at any altitude. The dose information is transferred to our smartphone app for display via Bluetooth, for career exposure monitoring, and for alerts of ongoing radiation events due to large solar flares.

Call 310-573-4185, visit <http://sol.spacenvironment.net/~ARMAS/index.html> or stop by Booth #N414 for more information.



ARMAS FM5 is built with

- 10 years scientific research
- 5 years engineering prototype development with over 100 test flights
- 4 national radiation laboratories' calibration beam-line runs
- 50 scientist and engineer efforts
- 3 U.S. Gov't agencies (NASA, NSF, NOAA) & international (S. Korea) collaborators for flight demonstration
- 4 discipline area (space physics, radiation physics, aerospace, electrical, and manufacturing engineering) advances over the past 10 years