

SOFIA'S DEBUT AT NASA-DRYDEN, AND A CONVERSATION WITH ERIK LINDBERGH

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The Stratospheric Observatory for Infrared Astronomy, SOFIA, was officially welcomed on June 27, 2007 to NASA's Dryden Flight Research Facility adjacent to Edwards Air Force Base in southern California's Mojave Desert.

SOFIA is a Boeing 747SP (special short-bodied, long-distance model of the 747), which served as a commercial airliner for PanAm and then United airlines. The aircraft now carries a 17-ton, 100-inch (2.5-meter) diameter telescope built by the German aerospace agency DLR and its contractors. The first test flight of the combined aircraft and telescope assembly happened on April 26 in Waco, Texas, the location of L-3 Communications Integrated System's plant where the aircraft modifications were accomplished. Former shuttle astronaut and Dryden's chief test pilot Gordon Fullerton was in the captain's seat on that auspicious day for NASA, DLR, and the world community of astronomers. SOFIA's fourth test flight was its "ferry" flight from Texas to California (see Edna DeVore's Space.Com column from June 7, http://www.space.com/searchforlife/070607_seti_sofia.html).

For SOFIA's "debut" celebration, the main doors of the central hangar at Dryden were opened, with SOFIA on the apron, its nose almost poking inside. Three hundred seats were ready for the invited guests, mostly current and former SOFIA program personnel, staff from Dryden plus Edwards AFB, and some VIPs including administrators from NASA Headquarters and Congressional aides representing their bosses who were still in session in Washington. SOFIA was behind the podium with its white and blue NASA colors gleaming in the bright desert morning sunshine. (Out of view a few hundred meters away was the space shuttle orbiter Atlantis, back from space only 5 days earlier, being processed for its eventual return to Florida.)

Before the SOFIA ceremony, some of the guests filed past a series of exhibits along the hangar wall. I was staffing a booth representing the Universities Space Research Association (USRA) that has responsibility for planning and conducting SOFIA's scientific mission, and also the SETI Institute that along with the Astronomical Society of the Pacific manages SOFIA's Education & Public Outreach effort. Waving an infrared camera back and forth, I was showing people on a monitor what they look like at wavelengths of 8 to 14 microns, the band in which room- and human-temperature objects emit most of their thermal radiation. The infrared is a great leveler: everyone finds themselves equally unappealing at those wavelengths, with dark noses, black glasses, dark hair with streaks of warm scalp showing through, and glowing white lips and tongues.

One fellow engaged me in a series of questions about the scientific goals of SOFIA and about its education program. I explained that one of the "sweet spots" for SOFIA

scientifically, given its ability from the stratosphere to collect far-infrared and sub-millimeter radiation inaccessible even from high mountain tops, and also given SOFIA's set of five powerful spectrometers, is to study the "life cycle" of organic molecules in interstellar space. We know that an enormous amount of organic chemistry happens in the dark clouds from which stars and planets form. Astrobiologists are pursuing the question of how much of the organic substances in Earth's biosphere were home-made, so to speak, or were created in space before the Earth formed and were somehow delivered to Earth's surface later. SOFIA's capabilities will make it perfect for pursuing this fascinating research topic, among many others.

My intense questioner then asked about SOFIA's education program, and I said, well, my plan is to train teams of educators to understand the research projects of astronomers and then fly onboard SOFIA with scientist partners, sort of like junior-varsity teachers in space. I hope to compose teams from classroom teachers, science museum docents, and even avid amateur astronomers with their own outreach programs. The goal would be that, by participating in actual frontier research projects, these educators would go home after their flights and, with the help of the SOFIA E&PO crew, work together to improve scientific and technical education in their communities and inspire their students. Based on the experience of the similarly-designed FOSTER program conducted during the last few years of SOFIA's predecessor the Kuiper Airborne Observatory, we also expect that the educators' careers will be invigorated, keeping them in the field and leading them on to become teachers-of-the-year, state curriculum coordinators, and so on, as we found when we tracked down the FOSTER alums 10 years later.

Finally, wondering whom this bright and energetic person might be, I introduced myself, and he, seeming startled, said, oh, I'm Erik Lindbergh. I stammered, said, it's an honor, and pulled out my business card, which he exchanged for his. Erik Lindbergh, grandson of aviator Charles Lindbergh, was there that morning to re-dedicate the SOFIA aircraft as the Clipper Lindbergh. This year is thirty years after Erik's grandmother Anne Morrow Lindbergh originally dedicated the same aircraft into commercial service with that name, which in turn was on the 50th anniversary of Charles Lindbergh's first solo crossing of the Atlantic. Just then the bell rang for everyone to assemble for the SOFIA ceremony.

There were a series of short speeches by such dignitaries as Kevin Peterson and Pete Worden, respectively the directors of Dryden and Ames, the two NASA centers cooperating for flight tests and eventual operation of SOFIA as a scientific observatory. Then came Erik Lindbergh's turn. He spoke extemporaneously and passionately about the crucial necessity for humanity to think outside of our various boxes. He pointed out the value of prizes in motivating people to accomplish great things (Erik is a trustee of the famous XPrize Foundation, and his grandfather's trans-Atlantic flight was substantially motivated by a prize purse). Finally, Erik praised the adventure represented by SOFIA's mission, including searching for organic processes in space, and taking teachers onboard to motivate the teachers and their students (my colleagues in the audience turned to me with eyebrows raised – where did he get those details from?). It was a sincere and inspiring speech that left those of us on the SOFIA project glowing.

Finally, Erik Lindbergh went up the jetway steps and pulled a cord to remove red-white-and-blue bunting that covered the script “Clipper Lindbergh” behind and below the left-hand cockpit windows, to the loud applause of all of us assembled there, cheering SOFIA at the commencement of its own journeys to the frontiers of human knowledge and achievement.