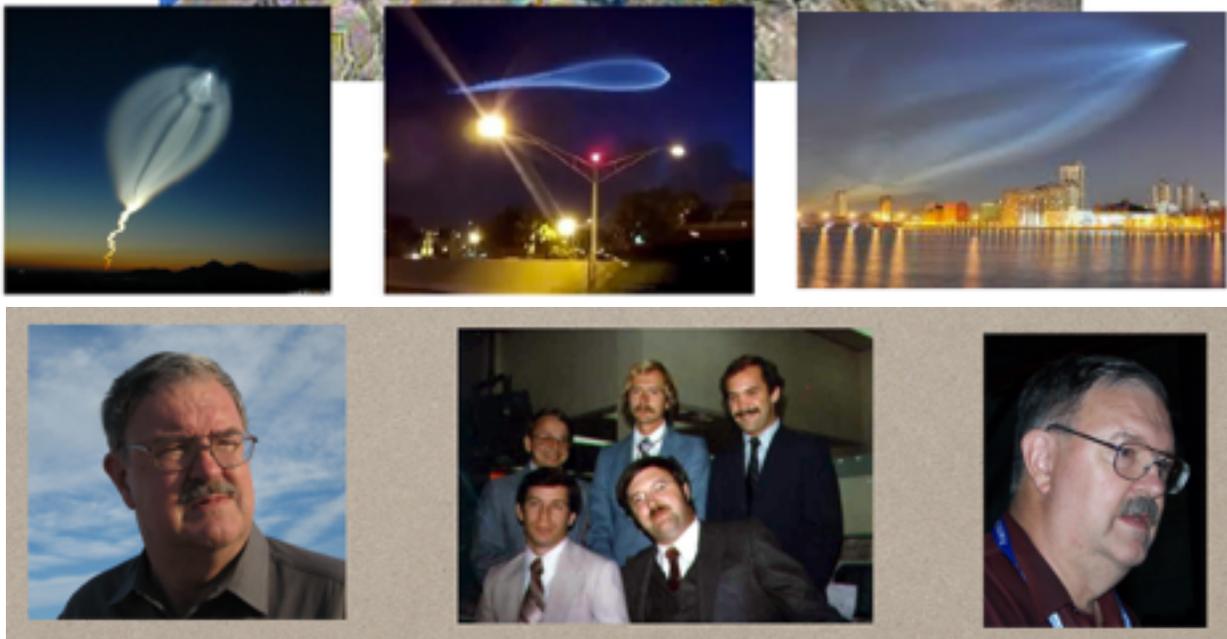


## *Lunch & Learn*

### **Soyuz TMA-19M Launch & Ascent Observations from ISS and Ground & Airborne Observers (Launch: December 15, 2015)**

by James Oberg, aerospace engineer & space journalist

An AIAA Houston Section History technical committee event  
Chair: Douglas Yazell; Members: Ted Kenny, Chester Vaughan



Everybody 'knows' what rocket launches LOOK like, but the Soyuz launch last December occurred under rare twilight conditions and with an unprecedented range of observers on the ground, in the air, and in orbit. They watched -- and recorded! -- dynamic ascent phases that when compared to the known timeline show remarkably detailed events. With dashcams now so common along the ascent track, and with the ISS cupola giving such a wide-angle view, more and more twilight launch events are being recorded and shared, some of them anticipated and others entirely by chance. They provide new insights into the dynamics of the engine-generated thruster plume evolution, and in some cases with OTHER launch vehicles they provide startling insights into the actual shape of the upper stage [by imprinting 'shadows' on the plumes]. And such spectacular events have fueled media-fanned worldwide UFO panics that show no sign of abating.

Jim Oberg [MCC OMS/RCS MPSR for STS-1&2] shares some results of his post-retirement 'rocket science'. See the website [jamesoberg.com](http://jamesoberg.com) for a longer biography (seven paragraphs) of Mr. Oberg.

- **Date: Tuesday, October 4, 2016 (the 1957 Sputnik anniversary date)**
- **Time: 11:30 AM to 1:00 PM**
- **Place: NASA/JSC Gilruth Center Lone Star room (second floor, end of the hall)**
- **Cost:** Advance registration (below): \$12 for members, \$20 for non-members. Walk-ins welcome: \$20 for members, \$25 for non-members. BBQ meal orders (below) must be placed by noon Friday, September 30, 2016 (meals included if available for walk-ins).
- **Meal:** Red River BBQ; brisket, spicy links, cole slaw, beans, iced tea. Vegetarian options available.
- Please use either of these websites:
  - <http://www.aiaahouston.org/event/soyuz-2015-launch-observations-with-james-oberg/>
  - EventBrite: <https://www.eventbrite.com/e/soyuz-2015-launch-observations-tickets-27721529842>