

Capabilities, Results, and Implications of Deployments on STS116 and TACSAT-2

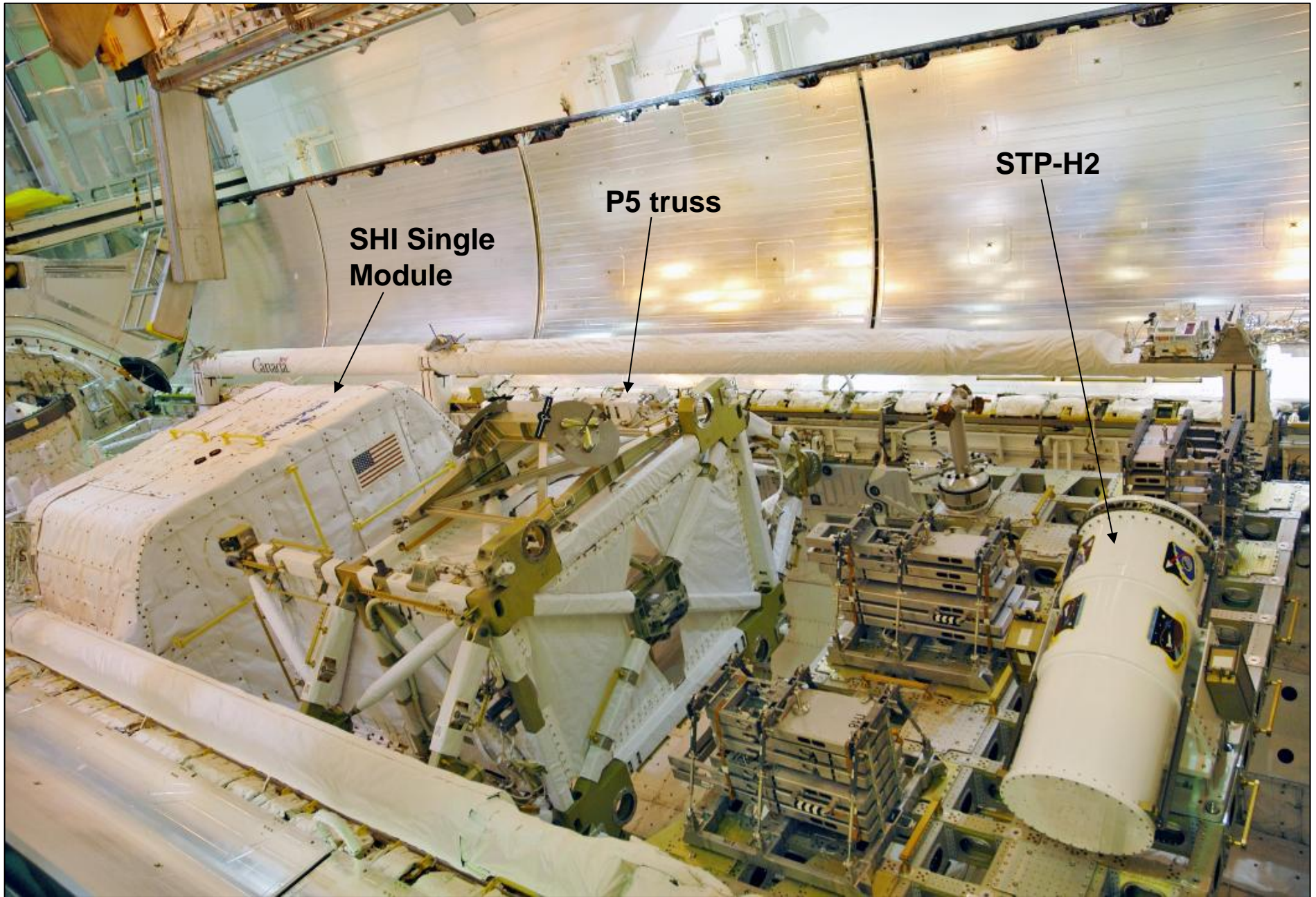


Perry G. Ballard, PhD
Chief Engineer, DOD Payloads Office
Johnson Space Center
281-483-3490
perry.g.ballard@nasa.gov

What has happened

- **We have deployed “littlesats” from existing US launch vehicles**
 - **Space Shuttle (ANDE, MEPSI, RAFT)**
 - **Atlas V (MIDStar 1, FALCONSAT 3)**
 - **Minotaur I (GENESAT)**
- **All of the “right” processes were followed**
 - **The barriers are down!**

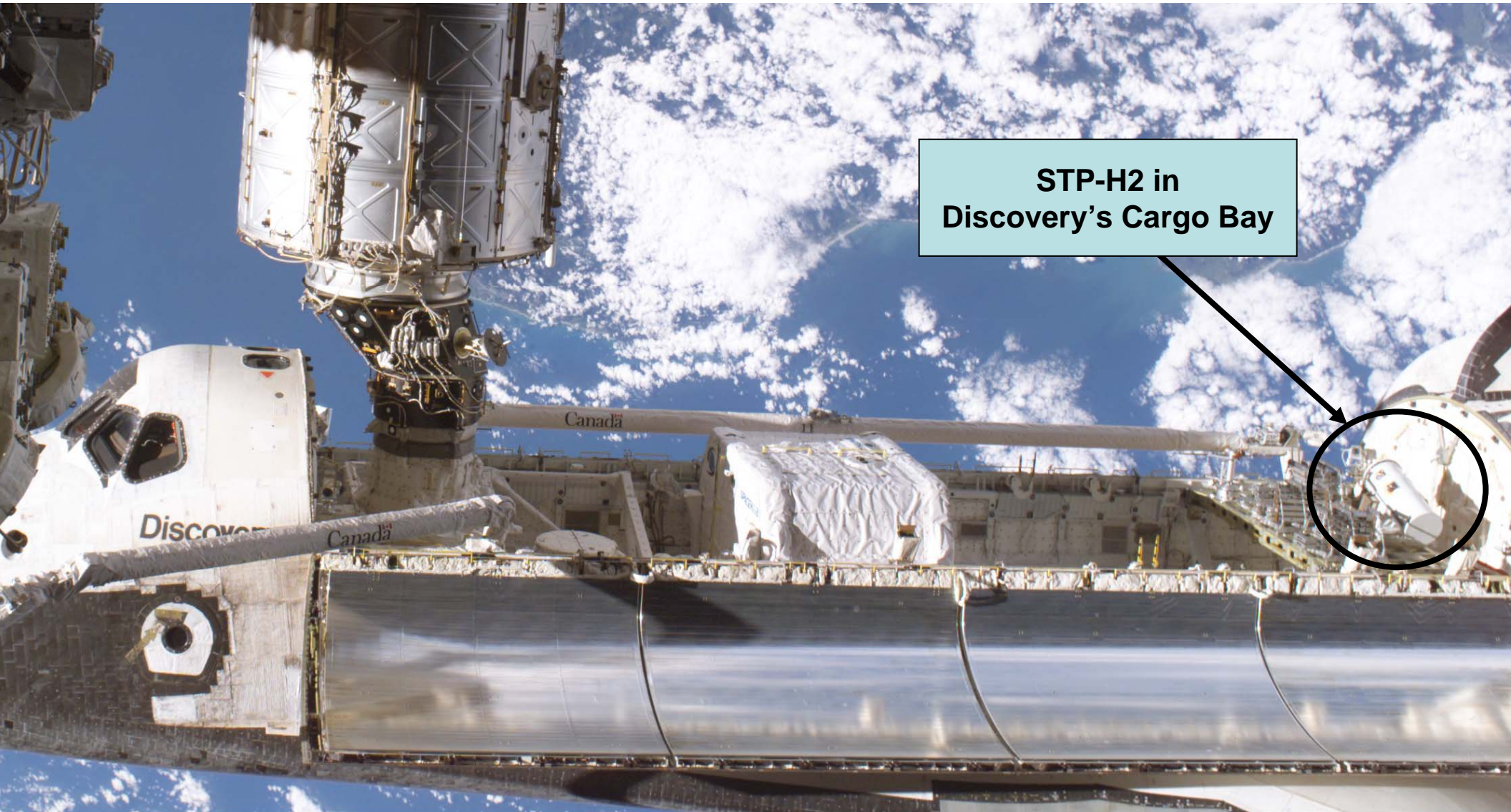
Payload Bay configured for STS-116



Proved the ability to charge batteries in the launcher!

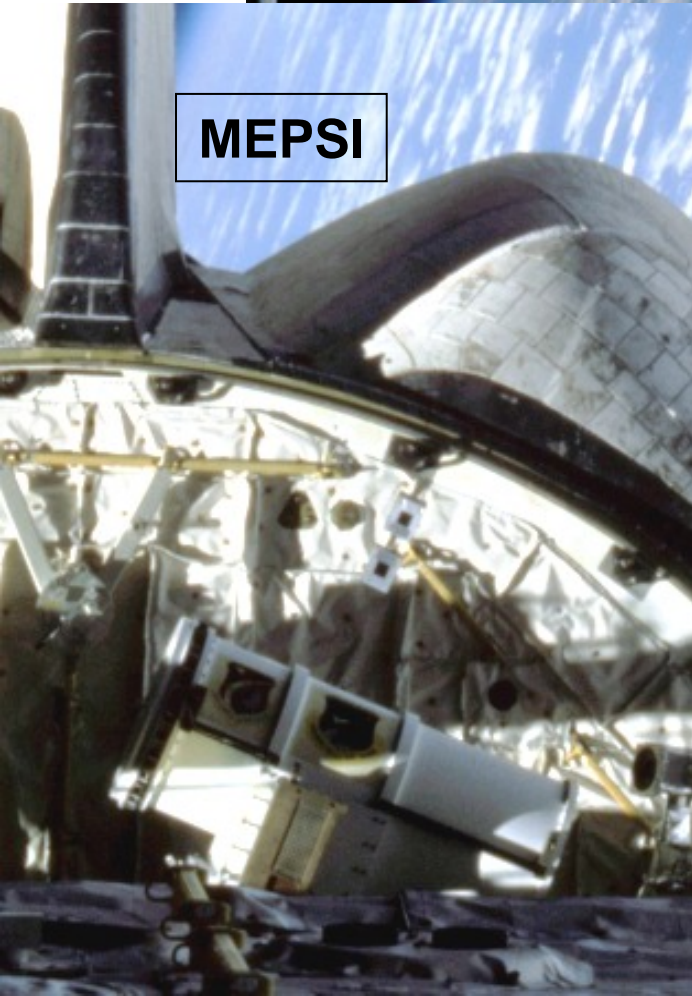
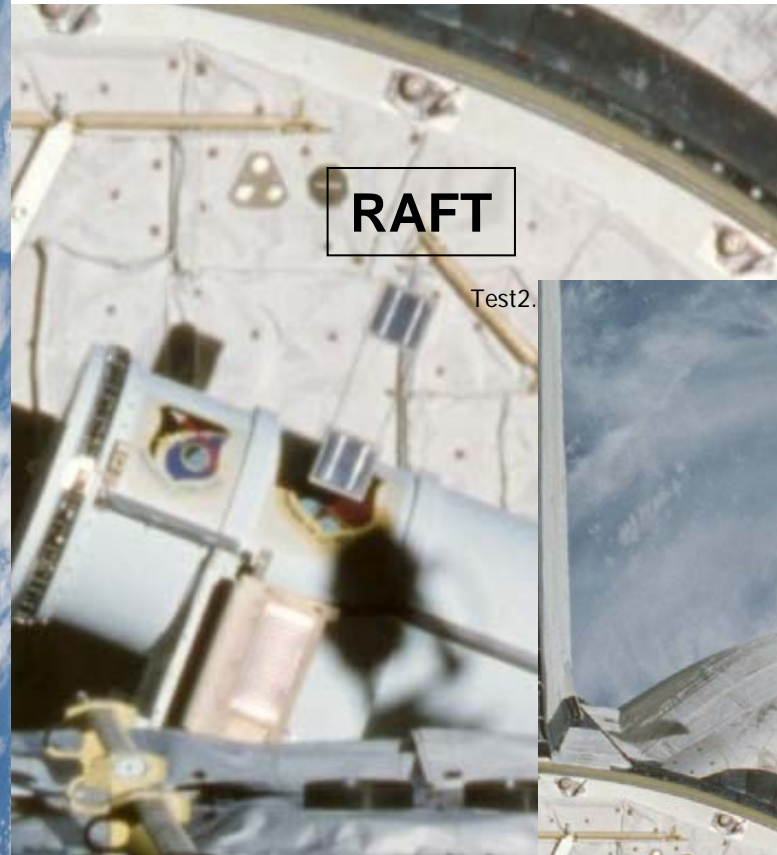


STS116 Docked to ISS



STP-H2 in
Discovery's Cargo Bay

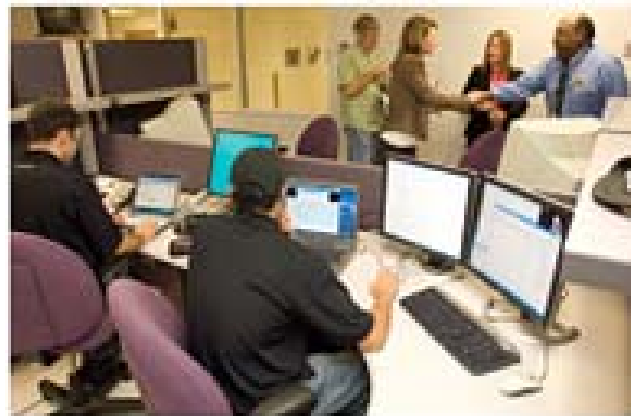
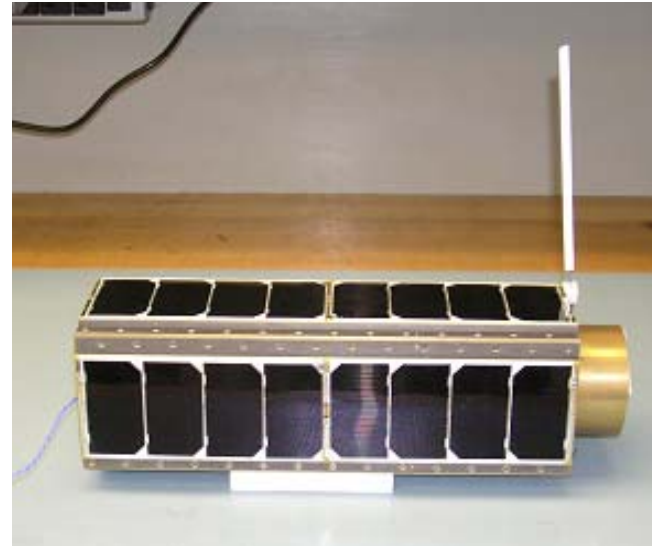
STP-H2 Picosat Deployments



TACSAT-2/GENESAT



P-POD mounted on Stage 4



This launch happened because of conversations at the AIAA SmallSat Conference!

Why it happened (history)

- **The community (all of us, gov't, industry, academia) has been working on this since the late 1990s.**
- **Through hard work, technical advances, and just plain stubbornness we have reached this point.**
- **There are heroes in this history....**
 - **People who took the time to make it possible**
 - **People who looked for opportunities**
 - **People who would not take “no” and “we’ve never done it this way” for an answer**

What it means (Implications)

- **For US launch vehicles (military at least) we know how to do this**
 - We have policies and procedures
 - For some cases it will be harder than others
- **Future ELV missions will most likely have this capability**
 - If you want it

Way Ahead

- **US Gov't picosat projects have ways to get flown...**
 - **Shuttle, DOD ELVs**
- **How do we extend that to non-USG?**
 - **Universities**
 - **Commercial Activities**
- **How do we “get into” the new LVs being developed?**

Conclusion

It has taken a long time... but we are now at the point that we dreamed about...

All the Official Policies and Procedures are in place

We have done it... and will do it again...

We have proved it can work and intend to do it again

Just keep up the good work!

Use the system in place and we will succeed!

**Does anyone have a
use for a formation
flying software
testbed?**



- **Please See Me.... Or call**
 - **Steve Sell**
 - **617-995-5628**