EXPLORE SCIENCE TECHNOLOGY

2021 SmallSat Conference
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Near-Term Crosscutting Technologies

SmallSats	1. APD: SmallSat/CubeSat Platforms 2. BPS: Deep space automated SmallSats capability 3. HPD: Means to de-orbit SmallSats 4. PSD: ESPA Class Electric Propulsion, Aerocapture demonstration using SmallSats
Autonomy	1. BPS: AI/ML Technology for Automated Payloads to Conduct Science Experiments in Deep Space 2. ESD: Advanced Radiation-hardened electronics for onboard computing (including CPU, memory and ancillary processors such as for AI/ML) 3. HPD: Autonomy/smart onboard processing 4. PSD: Terrain relative navigation, precision landing, hazard avoidance
Quantum	1. BPS: Free Space Atom Interferometer 2. ESD: Quantum Sensing
In-Space Service/ Assembly	1. APD: iSAT, Starshade 2. ESD: OSAM, Synergistic Fractionated Mission Capability, deployable antennas

*These are the top near-term crosscutting themes; there are numerous additional priorities across all SMD Divisions that were omitted for this planning exercise

SmallSats

- All divisions within SMD are engaged in planning for SmallSat missions

- Expecting more SmallSat goals from upcoming decadals

- Actively coordinating with STMD on SMD science needs and technology priorities

- Risk reduction approach for larger missions

- Pivot to SmallSat missions when science goals can be achieved for less on a faster timeline

- Challenge of "right sizing" NASA development effort vs. adopting emergent commercial capabilities