

Instruments in Venus Extreme Environment

- Venus mission launch timescales are very aggressive
- The science instruments must be ready in time
- Instruments on previous *in situ* missions were unexpectedly challenged in the Venus extreme environments
- Recent Venus *in situ* mission proposals significantly underestimated the difficulties
- Most previous studies limited to delivery and performance of the spacecraft, not instruments
- Need vigorous instrument development effort
- With testing under realistic simulations of the Venus extreme environments

Venus Instrument Technology

1. Create new Venus Instrument Technology Program (VITP)
 - Emulate ESTO Instrument Incubator Program (IIP)
 - Focus on defined measurement objectives and TRL advance, rather than technique innovation
 - Spend real money: more like IIP (\$1,000K/year/award) than PIDDP (\$250K) or MIDP (\$500K)
2. Create shared Venus Extreme Environments Instrument Test Facility (VITF)
 - Require testing as part of an award
 - Testing valuable for other *in situ* missions, e.g. Titan