February 2011 HASP status report from the SKC Wide Field Camera team

(1) SKC has ordered a thermal vac chamber from Abbess Instruments with delivery expected mid-March. The SKC WFC will be tested in the new chamber in April.

(2) Our JPEG encoder code for producing thumbnail images for downlink during flight has been ported to the WFC FPGA. The code had to be modified to make it small enough to fit in the remaining FPGA free memory by replacing the floating point calculations of the JPEG algorithm with integer calculations. Currently the WFC camera produces JPEG images but they are degraded. We suspect a bug in the ported code is causing this because the equivalent code we wrote that the ported code is derived from, with also has integer calculations replacing the floating point calculations, produces non-degraded images when running on a laptop.

(3) SKC has created a HASP serial emulator to help test and refine its HASP payload. The serial emulator was designed to simulate the HASP Payload Serial Communication environment. SKC's HASP serial emulator can send both HASP Time and Position Data strings and Serial Command Uplinks to the payload. Data received on the serial channel by SKC's HASP serial emulator is written to a file. The serial emulator will automatically send HASP Time and Position Data strings to the payload at a set period similar to the HASP flight system. The UNIX timestamp data in the GPS string is generated from the system time on the host computer and is only accurate to within 1 second. Both the sub-second portion of the UNIX timestamp data and the HASP GPS GGA string are static and do not change. Serial Command Uplinks to the payload are initiated by the operator of the serial emulator similar to the way this occurs in the HASP flight system.

We have used our HASP serial emulator to help refine our flight software and we will use it during April to exercise our payloads in our new thermal vac chamber.