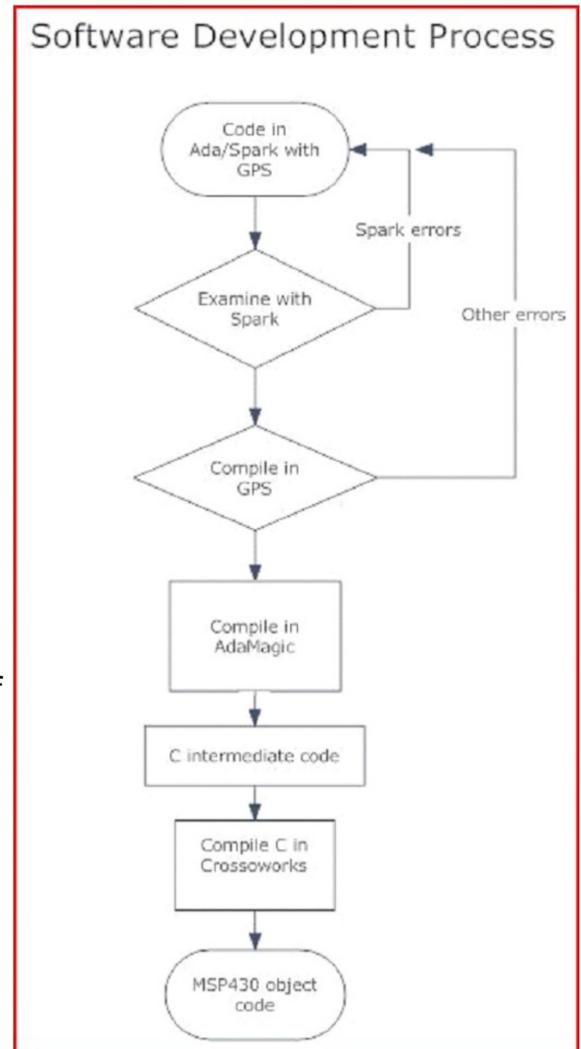# Software Development Process

- Software is written in SPARK/Ada using Adacore's GNAT Programming Studio (GPS)

- Checked with the Praxis High Integrity Systems' SPARK Toolset from within GPS

- Compiled and checked with Adacore's GNAT Pro Ada compiler

- Sofcheck's AdaMagic compiler front end is used to produce ANSI C as the intermediate code

- Rowley's Crossworks C cross compiler for Texas Instruments' MSP430 CPU produces the object code

- Pumpkin's Salvo RTOS is used as the operating system

Vermont Tech activities

- One Software Engineering Bachelors student, under the supervision of another faculty member, has written most of the Arctic Sea Ice Buoy last year
- After complete testing of the Arctic Sea Ice Buoy, a large grant will be submitted for the production of 10-20 of them. They will be used for validating a Prof. Jun Yu's (UVM) mathematical model of the ocean/ice interface
- This year we have several Software Engineering students working on the CubeSat software
- Three Electro-Mechanical Engineering Technology Bachelors students are completing a 3m azimuth/altitude steerable dish for 1.2 GHz and 2.4 GHz communication with the CubeSats. This will be part of our GENSO ground station.
- We have an Icom IC-910H, heavy duty rotors and 2m/440 MHz yagi antennas for the GENSO station.

One more Ada fact:

- If you fly, your filght was controlled by the Enroute Air Traffic Control System, written in Ada and delivered six months early and under budget. If you flew on a Boeing or Airbus plane, so was your avionics software.

Acknowledgments

Several companies have donated very expensive software through their academic programs, which was critical to our project:

- AdaCore (adacore.com) donated their GNAT Pro Ada compiler and programming environment.

- Praxis High Integrity Systems (praxis-his.com) donated their SPARK Toolset

- SofCheck (sofcheck.com) donated their AdaMagic Ada to C compiler front end

- Applied Graphics (stk.com) donated their Satellite Toolkit analysis software

  NASA supplied substantial funding through:

- NASA Vermont Space Grant Consortium and NASA directly

•NASA Vermont Space Grant Consortium

•NASA

•Vermont Technical College

•AdaCore, Inc.

•Praxis High Integrity Systems

•SofCheck

•Applied Graphics, Inc.