

ESPRIT – Pre-launch Readiness Review

Presented by Prof. Russell Philbrick

Faculty Advisor

The word "ESPRIT" is rendered in large, white, 3D block letters. The letters are set against a background of a blue and white Earth satellite image. Two small satellite models are positioned around the letters: one with an American flag pattern is above the 'I', and another with a Union Jack pattern is below the 'I'. A thin white line runs horizontally across the bottom of the letters.

ESPRIT

ESPRIT III



Engineering & Scientific Projects Research for International Teamwork

Students from:

Penn State University

Electrical Engineering Department

Aerospace Engineering Department

Universitetet i Bergen

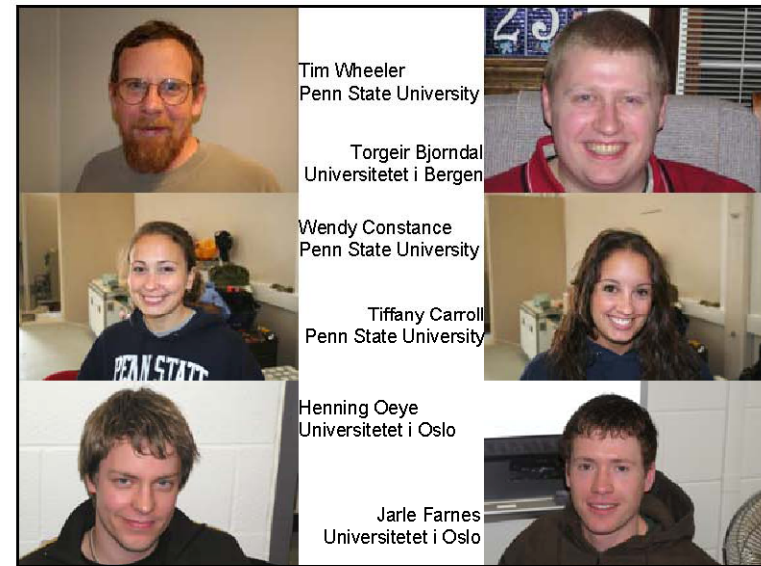
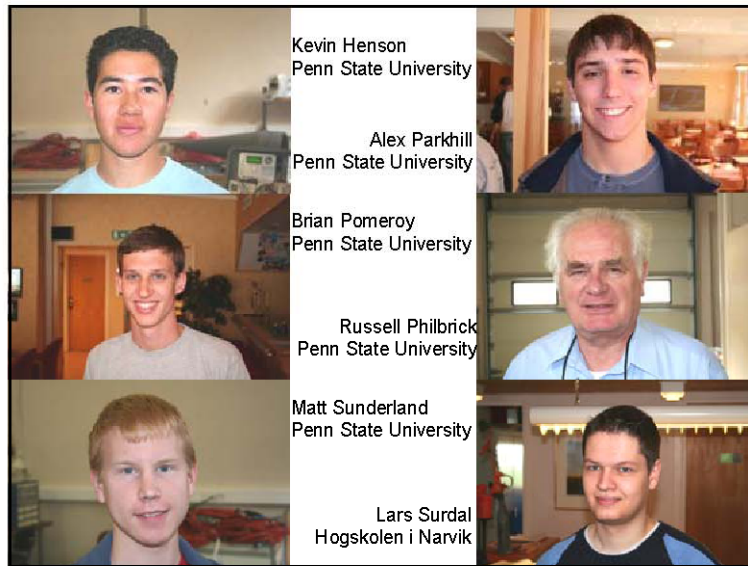
Høgskolen i Narvik

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Major Sponsors:

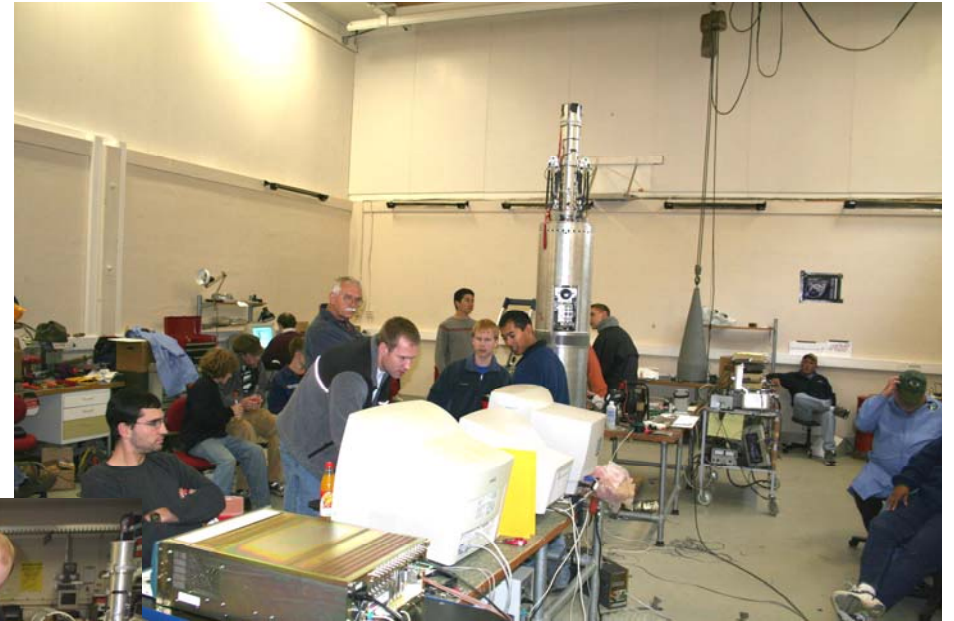
Andoya Rocket Range

NASA Wallops Flight Center

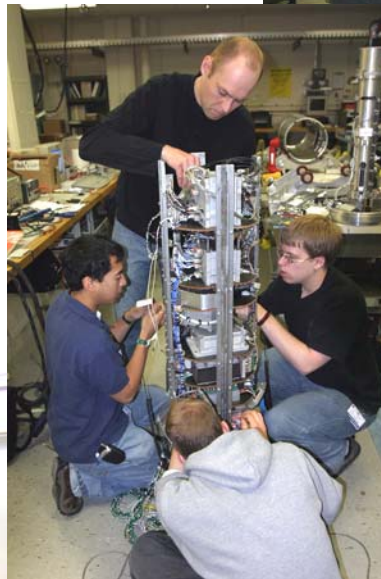




March 2005

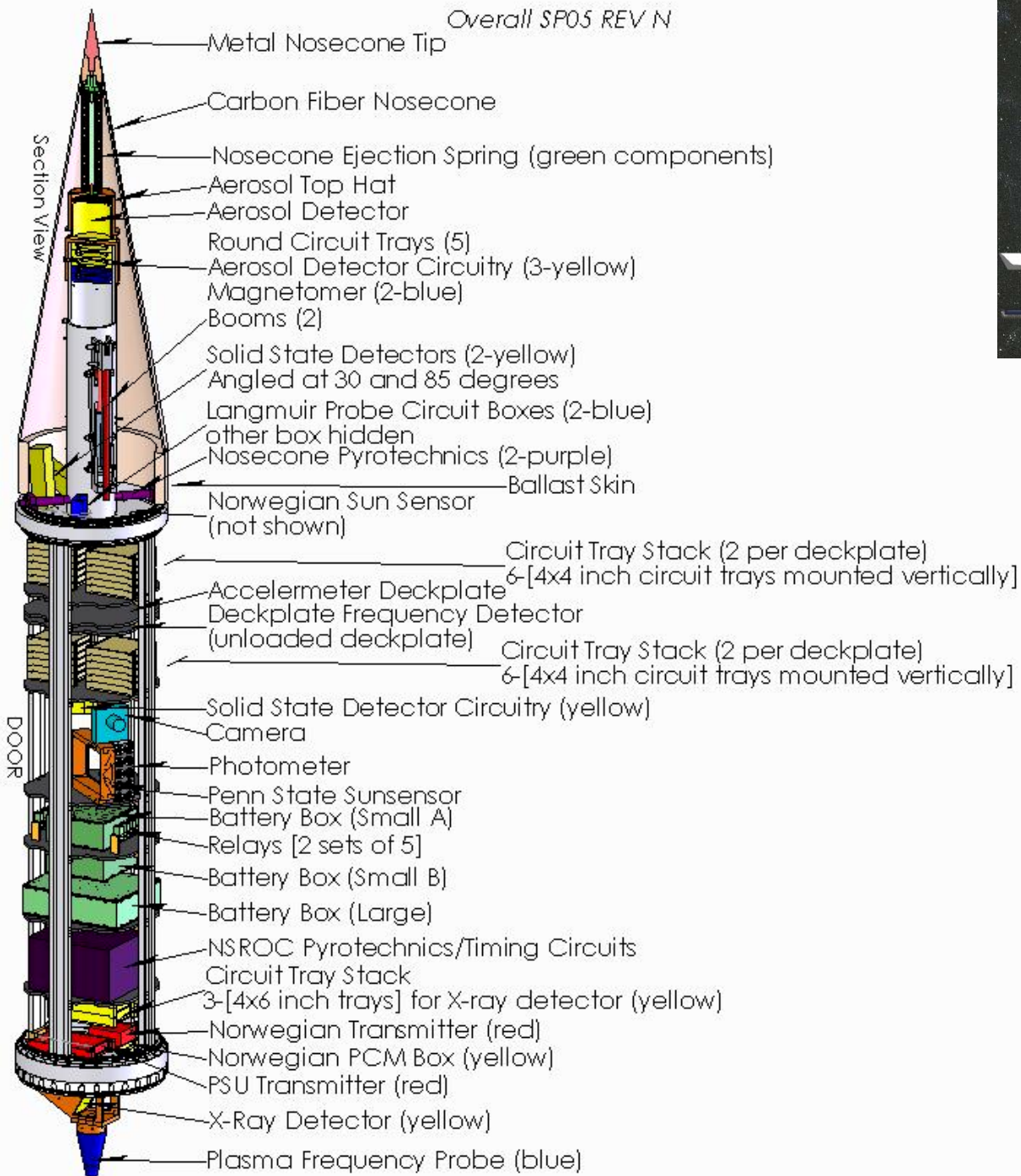


June 2006



March 2006

You've come a long way –





Penn State University

Brad Bittel
 Harald Bjorndalen
 Ed Brouwers
 Tiffany Carroll
 Wendy Constance
 Evan Driscoll
 Perry Edwards
 Adam Escobar
 Kris Greenert
 Kevin Henson
 Alex Parkhill
 Russell Philbrick
 Brian Pomeroy
 Brian Schratz
 Matt Sunderland
 Tim Wheeler

Andoya Rocket Range

Jorgen Ilstad

Universitetet i Bergen

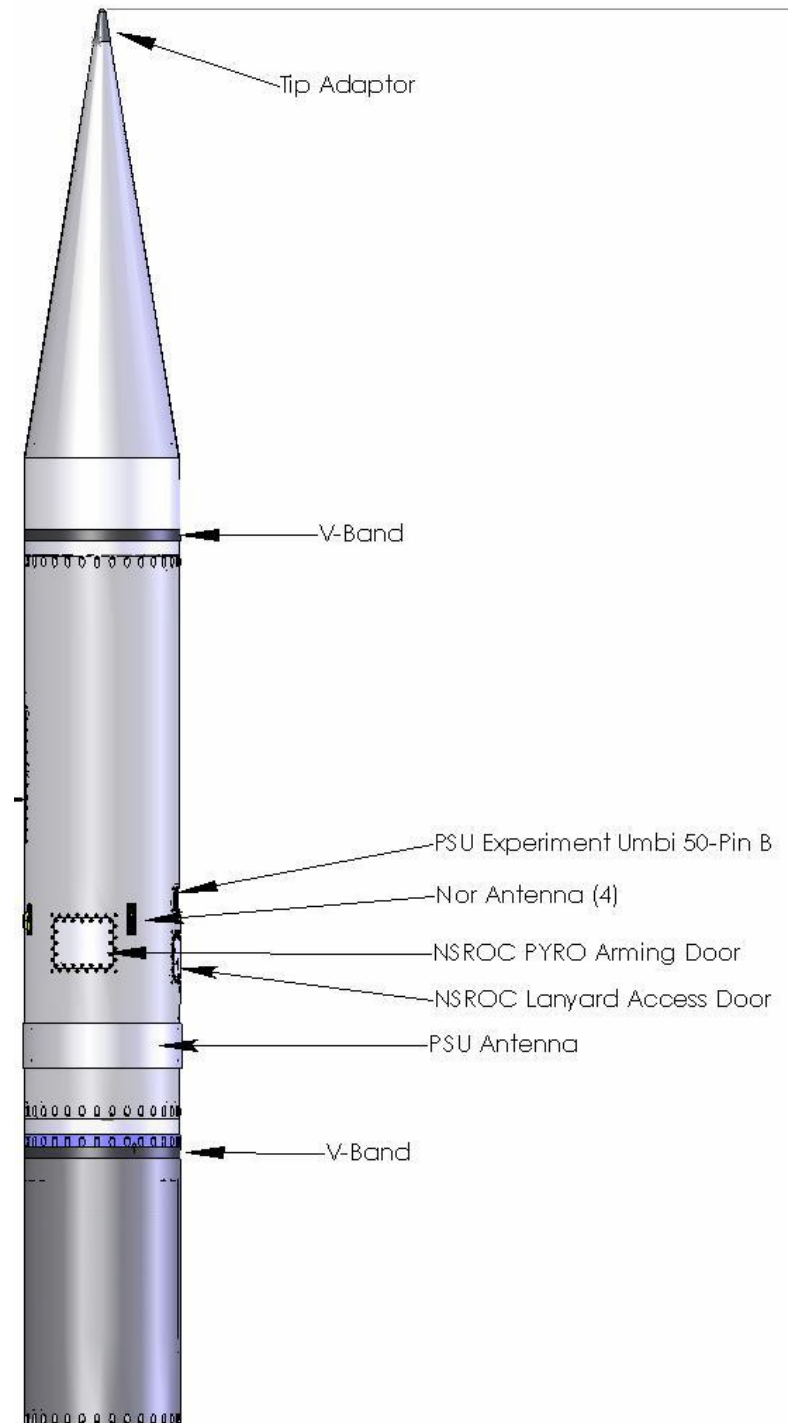
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ESPRIT Project

Science Goals ~

- (1) Investigate the high latitude ionosphere during a geophysically interesting period (NLC, PMSE, X-ray or particle event) using PFP, LP, X-ray instruments to improve our scientific understanding. We are particularly interested in coordination and collaboration with EISCAT, ALWIN and Hotpay.

- (2) Investigate the physical characteristics of mesospheric aerosols (NLC) particles and/or PMSE conditions using Multi-channel Photometer, Imager, Aerosol Detector instruments with particular interest in coordination and collaboration with ALOMAR, ALWIN and Hotpay.



Engineering Goals ~

- (1) Develop and test a composite nose cone and composite deck construction.
- (2) Develop and test pyro-less separation mechanisms.
- (3) Develop and evaluate new Plasma Frequency Probe (PFP) for future satellite and rocket investigations.
- (4) Test a new design for a sun sensor for attitude determination.
- (5) Develop and test boom deployment system.
- (6) Test flight of accelerometer and mini-gyro instruments.
- (7) Test a simple and inexpensive imaging system for future rocket and balloon flight.
- (8) Develop and test a new photometer instrument for future aerosol studies on balloon and rocket flights.



Educational Goals~

- (1) Prepare the next generation of scientists and engineers for research activities in the space sciences by providing challenging opportunities to gain hands-on experiences in a wide range of topics, that go well beyond the classroom environment.
- (2) Develop teamwork and professional skills through participation in complex multi-faceted projects that include experiences in design, testing, launch, data analysis, and technical reporting of engineering and scientific results.
- (3) Foster a global view of man's quest to understand the world around him by adding to our common store of knowledge, while developing an understanding of other peoples, countries and cultures to build international cooperation among the next generation of engineers and scientists.



Summary of the coordination with sensors and payloads for the ESPRIT project

Instrument	MF Radar	EISCAT Radar	ALWIN Radar	IRIS Riometer	ALOMAR RMR Lidar	Hotpay Compare
HiN Aerosol			X		X	D
UiO Accelerometer						
UiB X-ray/SSD		D		X		D
UiB Sun Sensor						
PSU Langmuir	X	X	X			D
PSU PFP	X	X	X			D
PSU Sun Sensor						
PSU Photometer	D	D	X		X	D
PSU Magnetometer						
Summary	X	X	X	X	X	D

X means required for detecting launch conditions

D means desired data during flight



Launch Criteria

27 June Tue	28 June Wed	29 June Thur	30 June Fri	1 July Sat	2 July Sun	3 July Mon	4 July Tue	5 July Wed
Countdown Rehearsal	#1	#2	#3	#4	#5	#6	#7	#8
NLC X-ray	NLC X-ray	NLC	NLC	NLC or PMSE + X-ray	PMSE	PMSE	PMSE	
ALOMAR ALWIN EISCAT Hotpay	ALOMAR ALWIN EISCAT Hotpay	ALOMAR ALWIN EISCAT Hotpay	ALOMAR ALWIN EISCAT Hotpay	ALWIN EISCAT Hotpay	ALWIN EISCAT Hotpay	ALWIN EISCAT	ALWIN EISCAT	



A theme for success –



Don't Ever Give Up



Ready to Go!!

