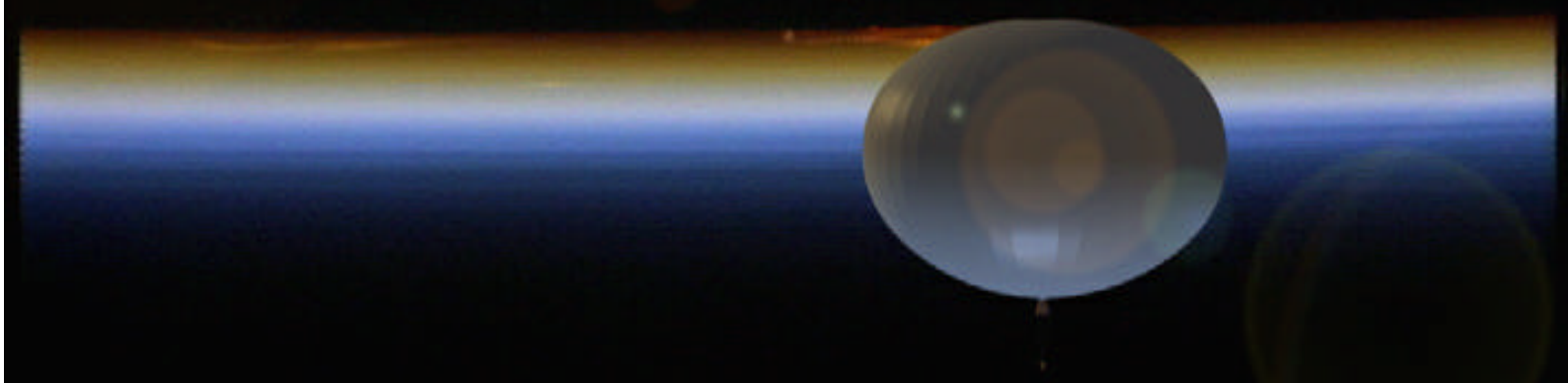
Ultra Long Duration Balloon Project (ULDB)

Summary



I. Steve Smith, Jr.
NASA/GSFC/WFF
Ira.S.Smith.1@gsfc.nasa.gov
http://www.wff.nasa.gov/~web/ULDB/index.html

Baseline Systems Definition

Balloon & Recovery Systems

Vehicle : Spherical Super Pressure Balloon

Material : DP 6611 Baseline or Equivalent

Recovery System : Packed Circular Parachute

Mission Operations

Operations Control Center : NSBF

Integration & Test : GSFC/WFF

TM & Command : Internet Accessible

Baseline Systems Definition

Balloncraft

Power : Solar PV w/Lithium-Ion Batteries

TM : 50 kbps Pointed TDRSS, INMARSAT/Iridium, ARGOS

Pointing : Azimuthal Modified WFF/LDB Rotator

Cryogenics : Sunpower Stirling Cycle Cooler

Data Storage : Hermetically Sealed Hard Disks

Software : Modification of Commercial RTOPS\

Position : GPS, ARGOS, Pressure

Thermal : Passive

Pyros : Laser Activated

GSE : PC NT Based, LabView Monitor & Control

Mass & Power Budgets

Summary

Balloon Vehicle	**2742**	**6046**	**0**
Suspended Load	**1192**	**2628**	
Recovery	243	536	3
Rotator	51	112	4
Ballooncraft/Gondola	358	789	92
Instrument	540	1190	222 / 522
Total System	**3934**	**8674**	**321 / 621**
Allowable	**4330**	**9560**	**1000**

Budget

WBS	Element	$K
20000	Balloon Vehicle & Recovery Systems	----
30000	Balloon craft	----
40000	Mission Operations	----
60000	ULDB Technology Development	----

	ULDB Project Totals	----

Science Not Costed : Funded Separately

Schedule

ULDB Systems Definition Review

Summary

ID	Task Name	Start
1	GSFC Study Team Assigned	Mon 9/15/97
2	Mission Definition Review	Tue 11/4/97
3	Conduct Trade Studies and select design concepts	Wed 11/5/97
4	Integrate subsystem design concepts/SDR	Mon 3/2/98
5	Preliminary Design Phase/PDR	Mon 3/23/98
6	6 KCM Superpressure test flight - CONUS	Tue 9/1/98
7	Critical Design Phase/CDR	Mon 7/20/98
8	60 KCM SP/BC test flight - Northern Hemisphere	Mon 3/1/99
9	Zero Pressure BC test flight - Australia	Wed 9/1/99
10	600 KCM SP test flight - CONUS	Mon 1/3/00
11	Demo 2000 Science/Balloncraft Integration & Tes	Mon 3/6/00
12	Demo 2000 Mission Readiness Review	Mon 7/31/00
13	Demo 2000 Field Integration & Test	Mon 10/2/00
14	Demo 2000 Flight	Mon 10/30/00
15	Post-Flight Analysis	Mon 3/26/01
16	Quarterly Demo 2000 Status Meetings	Tue 9/22/98
24	Canada/Alaska Test Flight Opportunities	Mon 6/1/98
28	Australia/New Zealand Test Flight Opportunities	Mon 11/2/98
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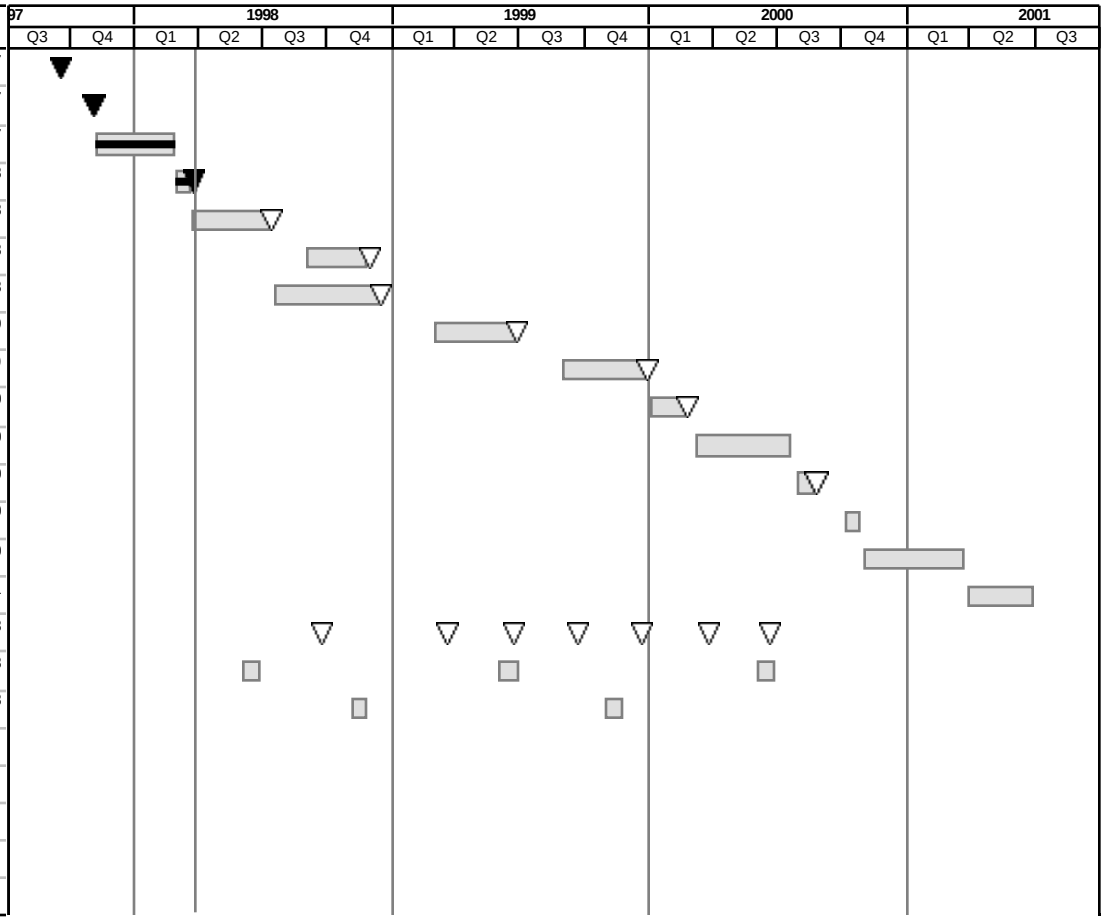

March 25, 1998

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Summary

- Anticipated Project Shortfall of ~ $1.5-$2 M
- Balloon Vehicle Is Greatest Technical Challenge, Risk & Is Project's Critical Path
- Project is Fast Track, Success Oriented
- Baseline Approach Will Meet Demo 2000 Objectives

Plans

- **Aggressively Pursue Additional Funding Sources:**
  - Develop Technology Plan for New Technology Dollars
  - Pursue Partnering Relationships (Foreign, DoD, Commercial)

- **Initiate Preliminary Design Phase**