The Radio Amateur Satellite Corporation

Barry A. Baines WD4ASW
President

2011 Annual Meeting @ San Jose, CA

November 5, 2011

2012 AMSAT Board of Directors

2012	**Tom Clark, K3IO**	**Clarksville, MD**
2012	**Lou McFadin, W5DID**	**Orlando, FL**
2012	**Gould Smith, WA4SXM**	**Knoxville, TN**
2013	**Barry Baines, WD4ASW**	**Westborough, MA**
2013	**Drew Glasbrenner, KO4MA**	**New Port Richey, FL**
2013	**Tony Monteiro, AA2TX**	**N. Andover, MA**
2013	**Alan Biddle, WA4SCA**	**Franklin, TN**
Alternate	**Mark Hammond, N8MH**	**Coats, NC**
Alternate	**Patrick Stoddard, WD9EWK**	**Scottsdale, AZ**

Senior Leadership Team

President	Barry Baines, WD4ASW	Westborough, MA
Executive VP	OPEN	
VP Operations	Drew Glasbrenner, KO4MA	New Port Richey, FL
VP Engineering	Tony Monteiro, AA2TX	N. Andover, MA
VP User Services	Gould Smith, WA4SXM	Knoxville, TN
VP Marketing	OPEN	
VP Human Space Flight	OPEN	
Secretary	Alan Biddle, WA4SCA	Franklin, TN
Treasurer	Keith Baker, KB1SF/VA3KSF	Corunna, ON
Manager	Martha Saragovitz	Silver Spring, MD

Overview

AMSAT's Mission Statement

As of 21-Feb-04

- AMSAT designs, builds and operates experimental satellites and promotes space education.
  - » Focus is on coverage and availability
- Partnerships
  - » NASA, ARISS – Human Space Flight
  - » Education: Foundations, Universities
  - » LEO satellite projects and education outreach
- Technical and scientific innovation
- Training and development
  - » Designers and Operators.

Overview

AMSAT's Vision Statement

As of 24 OCT 08

- Deploy satellite systems
  - » Wide area
  - » Continuous coverage
- Participation in human space missions
- Support a stream of LEO satellites
  - » Developed in cooperation with the educational community and other amateur satellite groups.

Coming to Grips with ITAR

AMSAT

is a

"Munitions Supplier"

International Traffic in Arms Regulations

- What has AMSAT Accomplished with our ITAR Strategy?
  - » Removed fears/concerns of our volunteers to possible legal action
  - » Cleared the air for both AMSAT and our satellite builders
  - » Created an environment where volunteers are willing to work on AMSAT projects

- What about recent developments?
  - » Due to ITAR, AMSAT-NA has limited options in exchanging technical information with foreign nationals
  - » AMSAT has encouraged DDTC to broaden the scope of 'public domain'
    - – Submitted Comments in June 2011 in response to DDTC Defense Services Proposal. DDTC has NOT made our comments public.
  - » Limit project work to US-based projects or within the scope of other ITAR sanctioned exchanges, such as NASA + RSC-Energia

The Regulatory Environment

- ITAR (International Traffic in Arms Regulations) continues to create significant constraints
  - » Inability to work with other AMSAT organizations
  - » AMSAT is a ‘different animal’ in the area of space technology
  - » University concerns about ITAR (Prevented UF approval of MOU)
  - » AMSAT is working hard to place all technology development in the ‘public domain’

- HR 607, “Broadband for First Responders Act of 2011”
  - » Draft-Major impact on Amateur Radio and the Amateur Satellite Service
  - » ARRL led the effort to publicize impacts and generate letter campaign
  - » Many amateurs have responded
    - – ARRL sought support from other amateur radio organizations, such as AMSAT

The Regulatory Environment

- AMSAT has focused on the impacts to the Amateur Satellite Service
  - » Drafted sample letter available on our website for AMSAT members to adopt to their own needs
  - » A meeting with Rep. King was held on 19 MAY with AMSAT member Peter Portanova, WB2OQQ (AMSAT Area Coordinator), a resident of his district along with 3 ARRL officers (NYC-LI SEC, NYC-LI SM, Gov't Liaison)
  - » A letter from the President of AMSAT to Rep. King outlining impacts of HR 607 on the Amateur Satellite Service was hand delivered and reviewed at that meeting

Peter Portanova, WB20QQ & Rep. Peter King (R-NY)

The Regulatory Environment

- Input from AMSAT and ARRL has made a Difference
  - » Rep. King is now aware of amateur radio (and AMSAT)
  - » References to amateur radio have been removed from legislation
  - » While we must remain vigilant, it appears that the Amateur Satellite Service will not be impacted by HR 607 or other proposals
  - » Bill is currently ‘sitting’ in the House with several proposals in the Senate, none of which impact amateur radio

International Relationships

- Interaction with organizations worldwide continues
  - » AMSAT-China attends Dayton Hamvention
  - » AMSAT-Turkey makes a return visit to Dayton Hamvention
  - » AMSAT-UK Colloquium features presentation by Lou McFadin, W5DID on ARISSat-1
  - » AMSAT-Francophone replaces AMSAT-France
  - » Continuing exchanges with the ‘new’ AMSAT-India
  - » ARISS-I Delegates Meeting at Houston, TX 27-29 OCT 11
  - » IARU Satellite Subcommittee Meeting at 2011 AMSAT Symposium

The Evolving Relationship with NASA Education

- ARISS School Contact Selection Process has changed
  - » New proposal process implemented Spring 2011
  - » NASA ‘Teaching From Space’ actively engaged in evaluating school applications
  - » Proposal for a specific six-month window for a school contact
  - » Expectations on school education content/plan, including curriculum integration
- New Process Reflects New Priorities
  - » ARISS is now more integrated into the NASA Education Portfolio
  - » Provides greater support/awareness for the program
  - » Instills more consistent standards for school proposal review
  - » Simplifies the horizon for when contacts are scheduled/conducted

The Evolving Relationship with NASA Education

- The education component of ARISS drives more opportunities for Amateur Radio in Space
  - » ARISSat-1 is the prototype of a new class of satellites
  - » NASA has previously expressed interest in supporting US-based school experiments on ARISSat spaceframes
  - » AMSAT is expected to provide educational content in support of ARISSat
  - » It is the education component that will drive ‘free launches’ depending upon the ability to deploy from the ISS
- Amateur Radio on the ISS is expanding
  - » Relocation of Erickson radio equipment to the Columbus Module
  - » Potential to have amateur radio transmissions from both the European and Russian Modules increases opportunities
  - » The potential for Digital ATV (spearheaded by ESA and AMSAT-Italy)

ARISSat-1 is Certainly a Success

- Successful Operation
  - » Deployed on 3 AUG 11 during Russian EVA
  - » Despite receive antenna damage, all services initially available
  - » Battery failed in ‘open’ condition, permitting continuing operations
  - » Technology demonstrations successful
    - – SDX SSTV BPSK-1000 MPPTs
  - » Ground station support for telemetry collection

- World Wide Interest
  - » Telemetry Forwarding (spacecraft and experiment)
  - » SSTV images uploaded to ARISS SSTV site
  - » Chicken Little Contest
  - » CW Contest

ARISSat-1 Education Impact?

- Mixed Results
  - » arrissat.org website education content lacking
  - » Inability to secure educator interest in providing materials
  - » NASA-AMSAT expectations not properly documented
  - » AMSAT leadership unable to focus on Education
  - » NASA Education ‘disappointed’ by lack of results
  - » Loss of Orlan battery terminated the Kursk Experiment

- That said, we must strive to improve our Efforts
  - » The satellite continues to provide services
  - » Materials developed today could be used for future missions
  - » NASA JSC Education continues to look for AMSAT to produce
  - » We need volunteers to help develop materials/document results

Fox: AMSAT's Next Satellite Project

- Split *Fox* program into 2 satellites
- *Fox-1*
  - » *Hardware FM transponder*
  - » *Simple IHU for telemetry and control*
  - » *No deployable solar panels*
- *Fox-2*
  - » *Software Defined Transponder*
  - » *Powerful, programmable IHU*
  - » *Higher RF output*
  - » *Deployable solar panels*
- Secure launch under NASA ELaNa Program

Advantages

- Eliminates key risk areas from *Fox-1*
- *P*rovides AO-51 replacement in significantly less time
- Accelerate engineering team experience with constructing AMSAT's first CubeSat
- Reduces *Fox-2* complexity
- Provides clearer path to linear transponder satellite

AMSAT Organizational/Financial Trends
Membership

- Membership levels continue to be a concern
- Membership Trends
  - » Current membership - 3385
  - » Nov 2010 - 3660
  - » Nov 2009 - 3646
  - » Nov 2008 – 3501
- Reduction of 275 members (-7.5%) in 2011 puts us below the number of members in November 2008, which we had considered to be AMSAT‘s low point.
  - » Economy?
  - » Aging amateur population?
  - » Lagging interest in AMSAT?

AMSAT Organizational/Financial Trends

Current income from dues and other sources are not sufficient to cover day-to-day expenses

- AMSAT reserves have been reduced due to market conditions and the need to cover expenses (both day-to-day and ‘capital investment’—satellites
- Growing the membership is critical
- AMSAT members are encouraged to recruit others to join AMSAT in order to increase cash flow to pay the bills
- A dues increase would likely be counter-productive
- AMSAT will use reserves to provide ‘seed money’ for Fox

AMSAT Organizational/Financial Trends

- All-volunteer organization/1 paid employee
- Management Team is Increasingly stretched
  - » Almost all Senior Officers come from the BOD
  - » Limited ‘depth’ in the management team
- Expansion of Services limited by manpower constraints
  - » Website needs facelift
  - » AMSAT membership must provide ‘value’
- AMSAT Journal Challenges
  - » Delayed issues due to lack of articles
  - » Leadership changes: new editor Doug Loughmiller, W5BL effective 1 JAN 12
  - » Building a publishing team/we need articles!

AMSAT Organizational/Financial Trends
What Ways can AMSAT Communicate?

- AMSAT's traditional media venues:
  - AMSAT Journal
  - ANS Bulletins (sent to all who subscribe to amsat-bb)
  - AMSAT Weekly HF Nets/VHF Nets
  - Dayton AMSAT Forum
  - AMSAT Symposium + Annual Meeting
  - AMSAT Mailings (with ballot plus Annual Fund Raising letter)
- Do AMSAT members take advantage of these outlets?
- Must AMSAT utilize social media methods?
  - "Tweets" You Tube
  - Facebook Pod casts
  - Blogs
  - Resources to create materials are needed

2012 Goals/Expectations

- Focus on Project Fox Engineering
- Fund Raising
  - » Complete 2011 capital campaign for Fox
  - » Successful campaign in 2012
- Building awareness/support for AMSAT
  - » Reverse the membership trend
  - » Enhance websites (www.amsat.org and www.arissat1.org)
  - » Get the AMSAT JOURNAL back on publishing schedule
- Continue education outreach
  - » Create education content for placement on arrissat1.org
  - » Find partners to help with content development
- Enhance the management team
  - » Find volunteers to fill key needs

AMSAT Fundraising

- It costs real $$$ to have a presence in space
- Combined investments in ARISSat and Project Fox are significant: about $400K
- AMSAT continues to look for new ways to encourage donations
  - » PayPal
  - » Webstore
  - » Fundraising is a multi-year effort
- The ‘DARA Challenge’ in 2011 was designed to encourage donations ‘Now’
  - » Any donation amount was appreciated
  - » DARA will provide up to $5,000.00 in 2011 (AMSAT must raise $15K)
  - » Goal achieved in August 2011

How can AMSAT Members Help?

- Recruit individuals to become members/rebuild the ‘base’
- Recognize that satellite projects are multi-year projects that require financial support each year
- Donate to our capital campaign for Project Fox and future opportunities in 2011 and beyond as you are able
- Use the existing satellites—rebuild interest in amateur radio in space
- Spread the word on ARISSat-1’s continuing availability
- Write articles for the AMSAT JOURNAL
- Volunteer your time and talent

Questions?