

AAL-PIP System Locations and Operation Status

Updated by Zhonghua XU
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1. Station Locations

Antarctic PENGUIn magnetometer sites operated by Virginia Tech and supported by grants ANT-0839858, ATM-0922979, PLR-1243398 and AGS-1338221 from National Science Foundation.

GREENLAND Site	Geog lat	Geog lon (E)	CGM lat	CGM lon	Conj geog lat	Conj geog lon	Antarctic Conj site
Thule (THL)	77.47	290.77	84.40	27.48	-79.72	121.63	Vostok
Savissivik (SVS)	76.02	294.90	82.68	31.23	-81.20	116.23	
Kullorsuaq (KUV)	74.57	302.82	80.36	40.28	-82.25	99.40	AGO P4
Upernavik (UPN)	72.78	303.85	78.57	38.71	-83.58	89.26	PG0
Uunmannaq (UMQ)	70.68	307.87	75.99	41.22	-84.50	77.20	PG1
Qeqertarsuaq (GDH)	69.25	306.47	74.82	38.15	-84.42	57.96	PG2
Attu (ATU)	67.93	306.43	73.54	37.09	-84.81	37.63	PG3
Kangerlussuaq (STF)	67.02	309.28	72.14	39.96	-82.75	28.59	AGO P3
Maniitsoq (SKT)	65.42	307.10	70.93	36.43	-83.32	12.97	PG4
Nuuk (GHB)	64.17	308.27	69.49	37.12	-81.95	5.67	PG5
Paamiut (FHB)	62.00	310.32	66.92	38.43	-79.13	358.20	
Narsaruaq (NAQ)	61.16	314.56	65.23	42.61	-76.25	0.78	

Magnetic coordinates (Corrected Geomagnetic Coordinates) are based on the IGRF for Epoch 2013. Calculations were done using http://omniweb.gsfc.nasa.gov/cgi/vitmo/vitmo_model.cgi

Note:

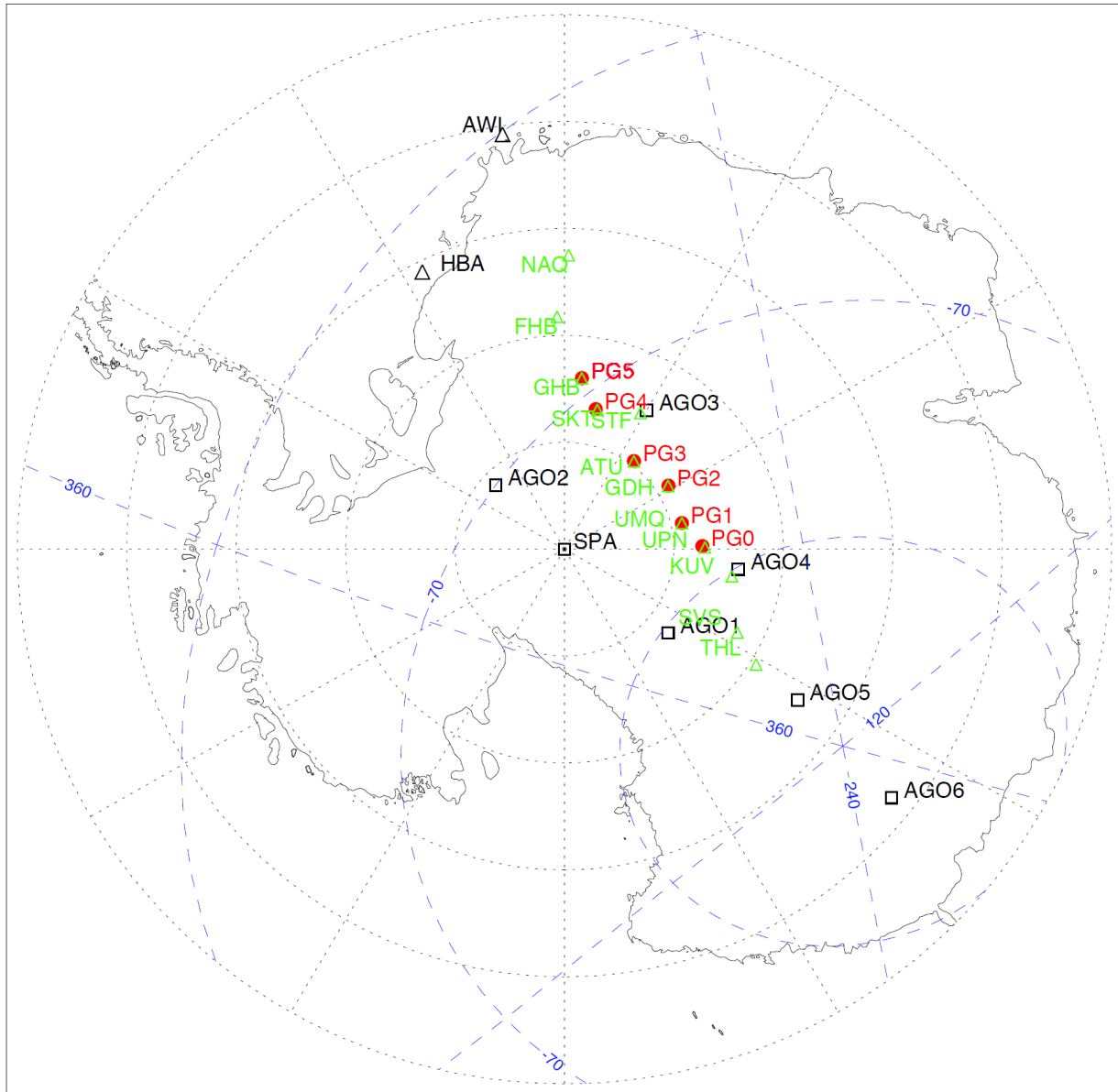
Landing site error tolerance: latitude: $\pm 2'$ (± 2.5 miles); longitude $\pm 24'$ (± 2.5 miles)

The following table shows the actual locations of the AAL-PIP systems based on the housekeeping data.

AAL-PIP Station	Geog. Lat.	Geo. Long (E)
PG0	-83.670065	88.680650
PG1*	-84.50	77.20
PG2	-84.418598	57.955558
PG3	-84.810127	37.629373
PG4	-83.339908	12.252648
PG5	-81.961297	5.71129

*No housekeeping data.

2. Station Map



3. Operation Status

Operational Period (as of 02/02/2016)									
Location	2008	2009	2010	2011	2012	2013	2014	2015	2016
PG0								Sys2 12/28/2014-present	
PG1	Sys1 01/08/2008-present								
PG2		Sys2 ⁽¹⁾ 01/09/2009- 12/28/2010)			Sys3 ⁽²⁾ 01/10/2012- 04/30/2012		Sys4 12/27/2012-present		
PG3						Sys5 01/05/2013-present			
PG4							Sys6 ⁽³⁾ 01/07/2014-present		
PG5									Sys7 ⁽⁴⁾ 01/06/ 2016- present
South Pole				Sys3 12/30/2010 -12/20/2011 Sys4 1/1/2011- 12/19/2012	Sys2 1/1/2012- 12/16/2012 Sys4 Sys5 12/26/2011- 12/18/2012 Sys6 12/28/2011- 12/19/2012		Sys3, testing	Sys7, testing Sys3, in storage	Testing Sys8 SIM card with Sys3 Ebox
US				Sys2 Ebox back for repairing		Sys2, Sys3, Sys6 back to U of Mich ⁽⁵⁾	Sys7 Ebox was built@U of Mich		Sys3 Ebox with Sys8 SIM card

(1) Sys2@PG2: Sporadic data availability and noise issue between 03/01/2009 and 12/28/2010.

(2) Sys3@PG2: No data after 04/30/2012, due to Electronic control box malfunction.

(3) Sys6@PG4: Iridium modem lost connection on 03/17/2014, then reconnected on 11/18/2014, then lost again on 02/25/2015, then reconnected on 01/11/2016. Though the system lost connection due to the modem issue, all the data were successfully collected and stored.

(4) Sys7@PG5 is using Sys3's SIM card, Sys7's FGM sensor, and others from Sys4.

(5) Three Eboxes were sent back to the US: Sys2 for upgrading, Sys3 and Sys6 for diagnosis.

4. System Tracking Status

SIMCard	2008	2009	2010	2011	2012	2013	2014	2015	2016	
SYS1	1 2 ... 12	1 2 3 4 ... 12	1 ... 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	
	Run@PG1, S84.50 E77.20 (1/10/08-present)									
SYS2	1 2 ... 12	1 2 3 4 ... 12	1 ... 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 11 12	2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	
	Run@PG2, S84.42 E57.96 (1/9/09-12/28/10)			(Test@SP, 11/2011-1/2013 shipped back to US)		Upgrade and test@SP (12/31/2013-present)		Run@PG0, S83.67 E88.68 (12/28/2014-present)		
SYS3	1 2 ... 12	1 2 3 4 ... 12	1 ... 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	
	Test@SP, 12/2010			Run@PG2 Swap with sys4 @PG2 on 12/27/2012 (1/10-4/30/2012) Then shipped back to the US		Tested@SP, 12/31/2013-present		The sim card was transferred to SYS7. Install a new sim card(SYS8) on 12/24/2015 SYS3 is stored@SP on 01/04/2015		Shipped back to the US
SYS4	1 2 ... 12	1 2 3 4 ... 12	1 ... 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	
	Test@SP, 12/2010-12/2012			Swap with sys3@PG2 (12/27/2012-present)						
SYS5	1 2 ... 12	1 2 3 4 ... 12	1 ... 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	
	at VT			at UofMich 8/8/2011		Run@PG3 S84.81 E37.63(1/5/13-present)				
	Test@SP, 12/26/2011-12/2013									
SYS6	1 2 ... 12	1 2 3 4 ... 12	1 ... 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 11 12	2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	
	at UofMich 2/8/2012-7/12/2011			Blue-Box ship back to US		Run@PG4, S83.32 E12.97 1/7/2014-3/16/2014 lost contact				
	Test@SP, 12/28/2011-12/2012									
SYS7	1 2 ... 12	1 2 3 4 ... 12	1 ... 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	
	Build@UofMich for repairing SYS6							Run@PG5, S81.96 E5.71		
	Tested@SP with SYS3 SIM card since 2015/01/04							From 01/06/2016-present		

 for testing at the South Pole
 Back to US
 At remote location

SYS8 A new sim card for repairing SYS6 modem problem, which started in 12/2015, tested@SP with SYS3Ebox. Now it is shipped back to the US with SYS3Ebox.

SYS7Ebox A backup system built in 2014@U of Mich, only has electronic box, and its paired Fluxgate Sensor.

PG0(S83.67 E88.68) PG1(S84.50 E77.20) PG2(S84.42 E57.96) PG3(S84.81 E37.63) PG4(S83.34 E12.25) PG5(S81.96 E5.71)