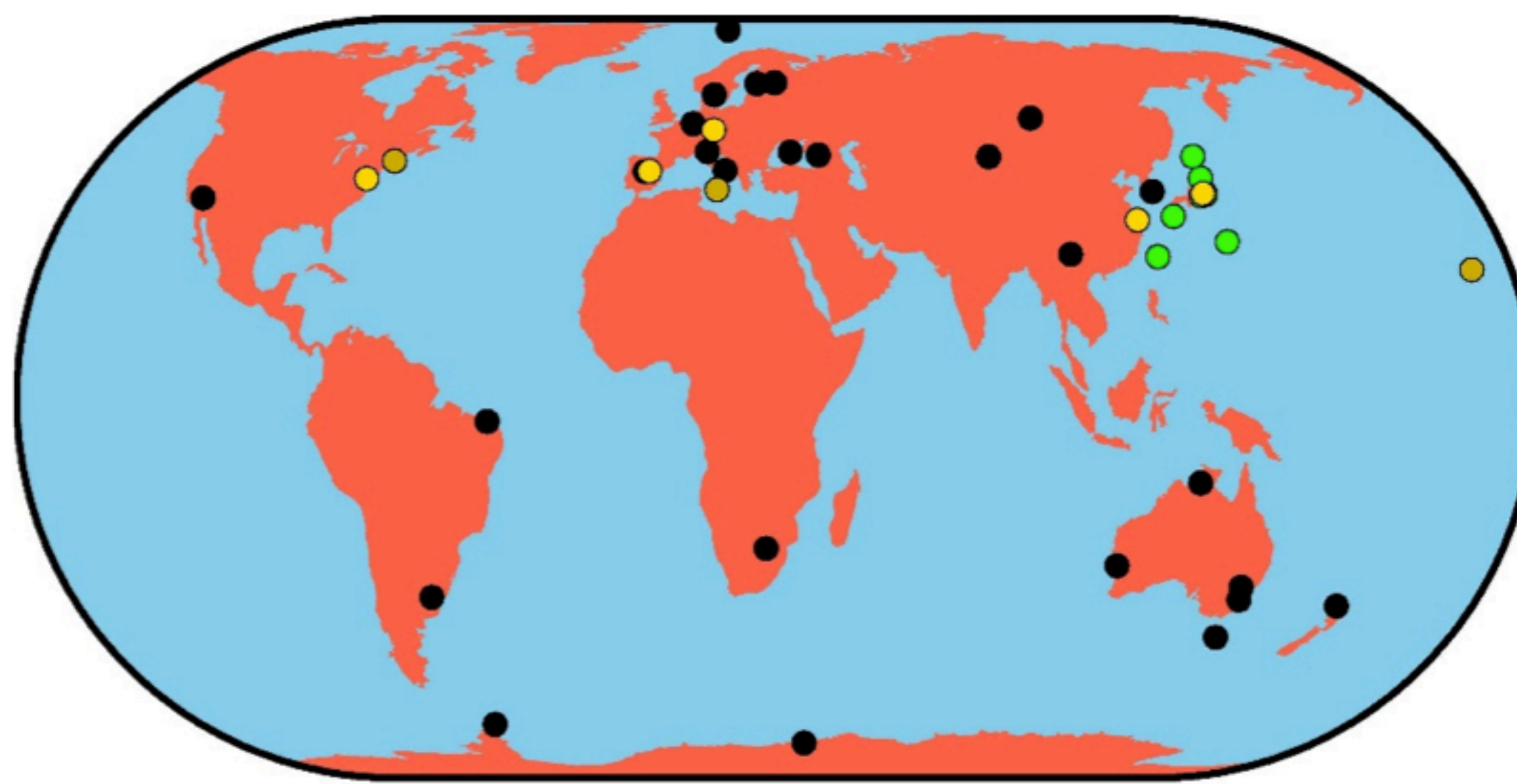


Introduction

Over the years, VLBI has upgraded its recording capabilities by transitioning from thick to thin tapes, thin tapes to disks, and currently the plan is to transition from Mark 5 disk recording with proprietary hardware and software to Mark 6 disk recording with open source software, commercial off-the-shelf hardware, and higher bandwidth for VGOS stations. The purpose of this poster is to show how this process will affect the geodetic media pool. Currently there are about thirty-four legacy stations participating in the IVS Observing Program that use the Mark 5 recording system. According to the VGOS Observing Plan (Petrachenko et al., 2014) there will be eight VGOS stations operational by the end of 2014, including three converted legacy stations. We show the impact of the VGOS Trial Operations in 2015 and the VGOS Pilot Project in 2016 on the geodetic media pool. This includes the projected number of modules needed to maintain the Mark 5 pool for legacy stations and the projected number of Mark 6 modules needed to support the Trial Operations and the Pilot Project. We will also provide an estimate for the number of Mark 6 modules that need to be purchased by each station to support regular VGOS observing as well as an annual purchase of Mark 6 modules needed to mitigate media pool attrition.

Legacy, VGOS, K5, & Converted Stations



- Legacy stations (Mark 5, SATA and PATA modules)
- K5 stations (e-transfer only)
- Converted legacy-to-VGOS stations (Mark 6, SATA modules)
- VGOS stations (Mark 6, SATA modules)

Legacy S/X

Modules Needed to Support Legacy Observing

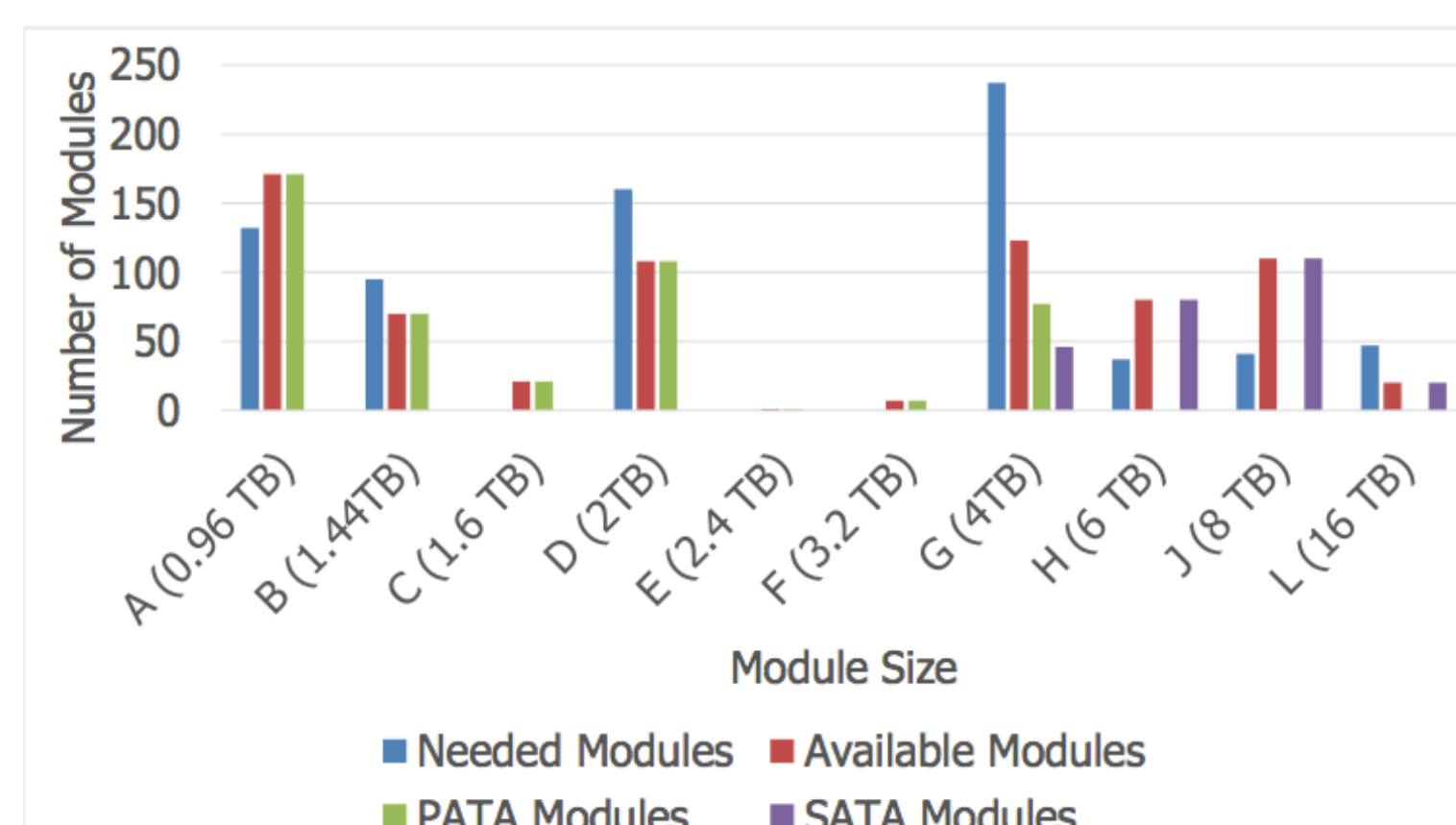
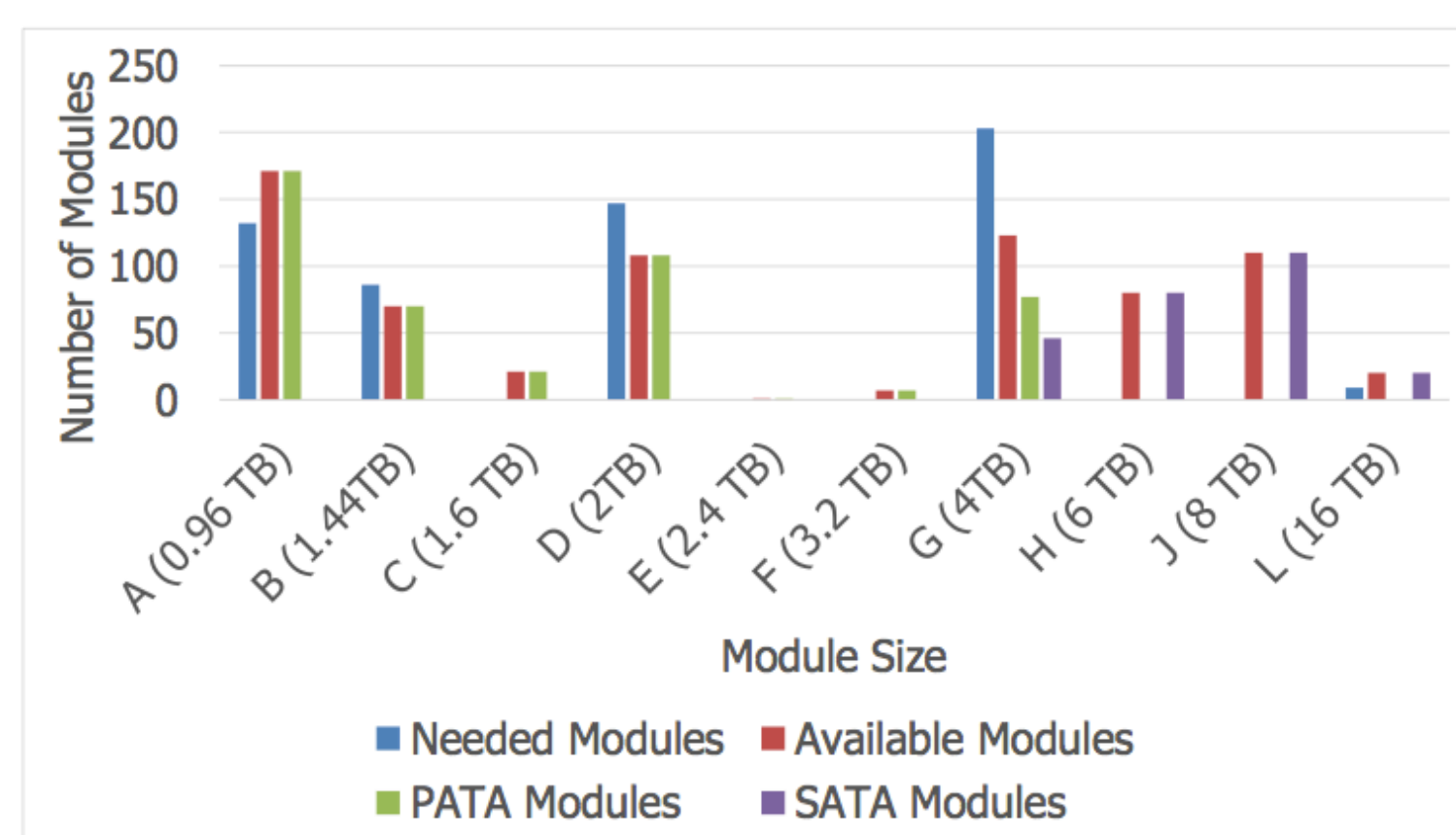


Chart 1- Number of modules needed to support regular legacy observing.

The data shows how many modules of a particular size (A-size - 0.96 TB, B size - 1.4 TB, etc.) are needed to support the legacy stations. Also displayed are the available modules in a particular size and how many of those modules are PATA or SATA modules. There are not enough D-size (2 TB) and G-size (4 TB) modules but the larger modules can be used instead.

Chart 2- Number of modules needed to support regular legacy observing plus a CONT Campaign.

As in Chart 1, the data shows information about the number and the size of modules. There are not enough modules of certain sizes. So, the larger modules will be used to supplement the smaller modules. In addition the 56 modules listed in the table below will be requested as a loan or purchase to support the next potential CONT Campaign.

Modules Needed to Maintain Legacy Observing

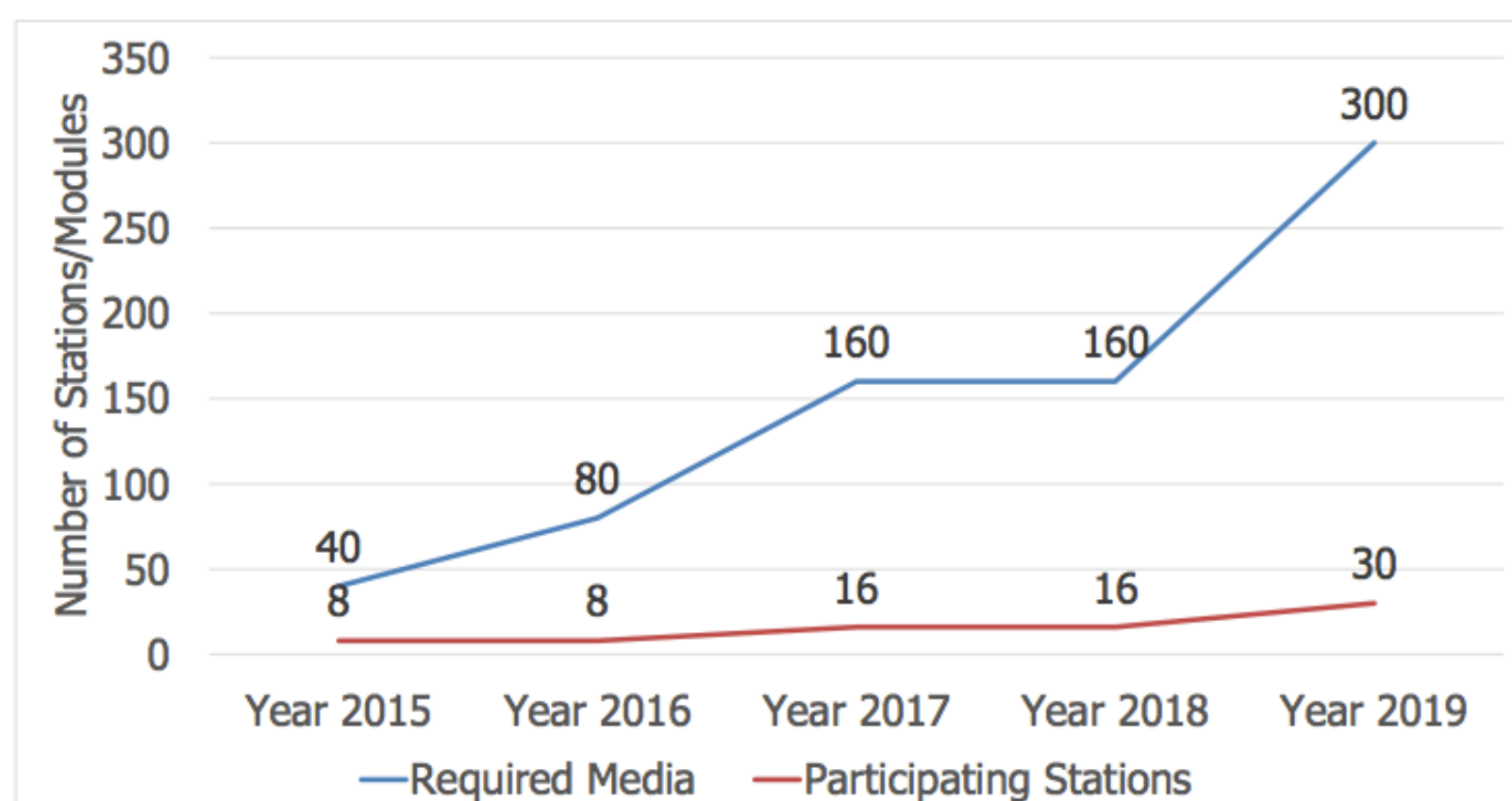
Station	Bd	Ft	Ht	Hh	Ho	Hb	Ke	Kk	Km	Ma	Mc	Mh	Nt	Ny	Oh	On	Kv	Sh	Sm	Sv	Ag	Ur	Ww	Wf	Wz	Yg	Ys	Zc	Total
Regular Observing Usage	11	21	21	16	8	28	28	28	5	24	19	6	10	28	5	17	23	11	7	11	24	11	20	20	28	28	20	28	506
Annual Failure Rate - 5% (Replenish)	1	2	2	1	1	2	2	2	1	2	1	1	1	2	1	2	1	2	1	1	2	1	1	1	2	2	1	2	40
Additional CONT Need (2017?)	8	0	0	0	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8	0	0	0	0	8	56

NOTES

1. This table represents the total annual usage based on current level of observing.
2. Media has to be replenished based on failure rate and TB used.
3. This table does not include supplying media for AUSTRAL sessions and AUST15 Campaign. The AUSTRAL and AUST-15 Campaign will be supplied by the AuScope media pool.

VGOS Broadband

Modules Needed to Support VGOS Observing



Modules Needed to Maintain VGOS Observing

Station	8-Station Network	8 Additional Stations	14 Additional Stations
Total Purchase 2014	40		
Total Purchase 2015	40		
Total Purchase 2016		80	
Total Purchase 2017			
Total Purchase 2018			140
Failure - 5%	4	4	7
Replenish per station annually	1	1	1

This table shows the start-up and maintenance of the VGOS media pool.

- First 8 stations:** GGAO12, Ishioka, Kokee, Noto, Seshan, Westford, Wettzell, and YebeS
Additional 8 stations: Santa Maria, Tenerife, Flores, Onsala, Metsahovi, Changchun, Kunming, and HartRAO
Additional 14 stations: Ny Alesund, Badary, Zelenchukskaya, Ussurisk, Kaliningrad, Kokee, Hobart, Katherine, Yarragadee, Warkworth, and two new NASA stations

Points

1. SATA Mark 5 Modules can be converted to Mark 6 by replacing the chassis for \$495 per module.
2. PATA Mark 5 modules can not be converted to Mark 6
3. Kokee, Noto, and Westford will not contribute to the legacy geodetic pool once they become VGOS stations.
4. TRACK programs needs to be replaced and maintained to support Mark 5 and Mark 6.
5. The 5% failure rate is an estimate.

Reference

B. Petrachenko, D. Behrend, H. Hase, C. Ma, A. Niell, A. Nothnagel, X. Zhang: Proposal for VGOS Observing Plan. Internal Report, VLBI2010 Project Executive Group (V2PEG), February 2014.
http://ivsc.gsfc.nasa.gov/technology/vlbi2010-docs/vgos_observing_plan_140213.pdf