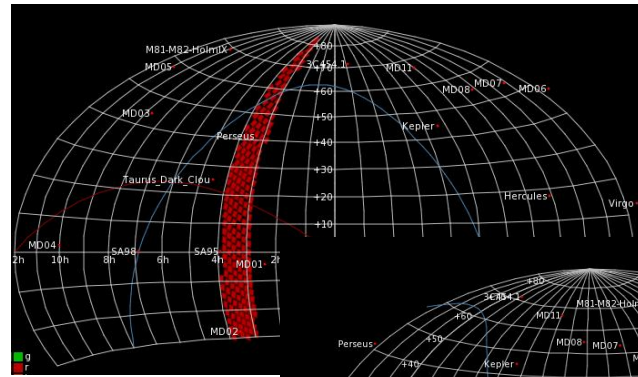
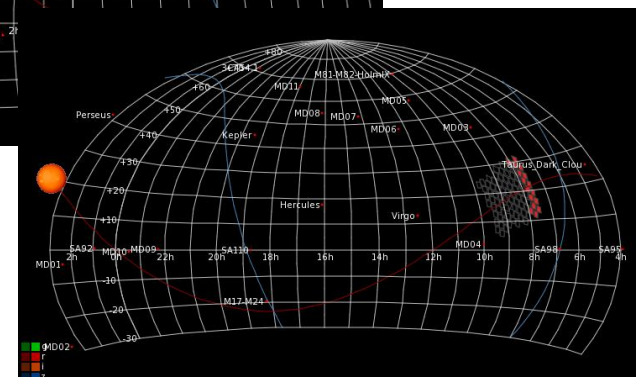
Pan-STARRS search for optical counterparts to GW events

- PS1 & PS2 Mission starts March 1, 2014 – through ~ 2018. Coverage from -50 < Dec < 90 is possible.
- PS survey will cover ~ 1.75pi steradians 3-4 times a lunation
- HLV & HILV error ellipses, and possibly Epoch 2015 annuli can be observed upon receipt of a GW alert.
- Observations will consist of "quads" with 4 exposures separated by an interval of ~ 25 min. Will remove moving objects, provide redundancy for transients, and stack depth. Single exp ~ 22.8 mag (dark time), 22.3 mag (bright time), stack 23.6 (dark) 23.1 (bright).
- Existing PS1 3pi steradian static sky can be used for difference imaging and catalog comparison.
- Scheduling delay of 5 to 30 minutes, processing delay of ~ 30 min. Latency for PS Team TOO follow confirmation on UH 2.2m , 8 meter spectroscopy, and IR IR photometry 1.5 to 2 hours.
- Provide measured transient background as part of survey program.
- Provide observational prior from all optical/ir transients back to LIGO-Virgo to investigate low S/N GW signal.



Epoch 2015



HLV
HILV

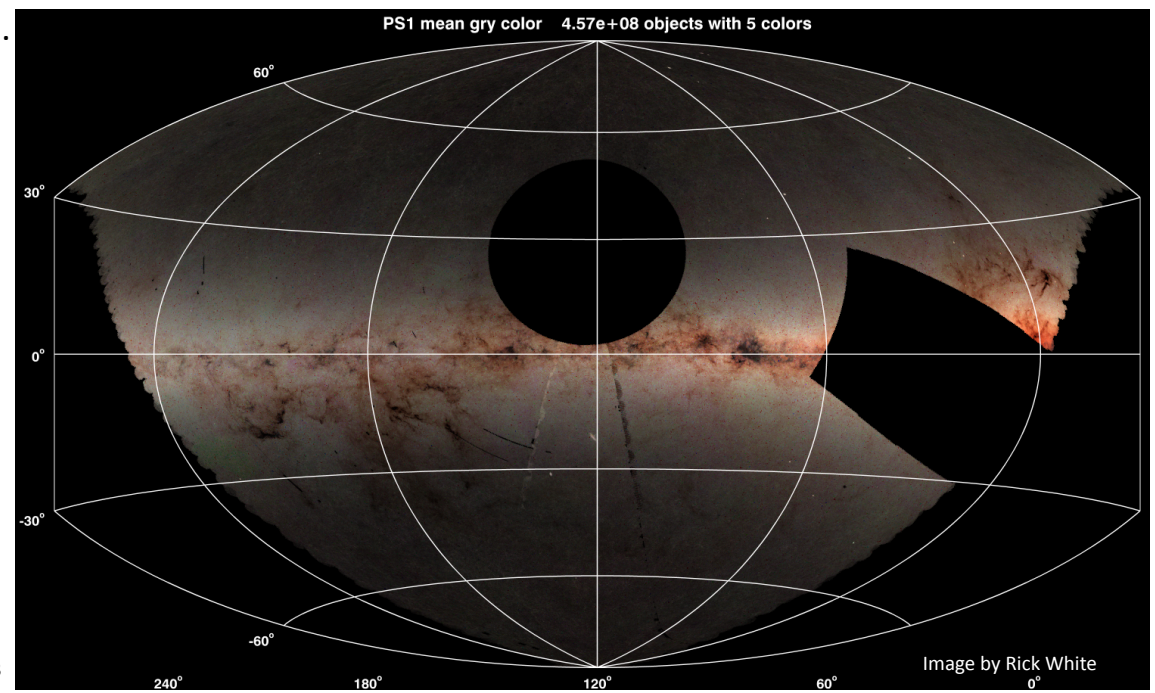


Image by Rick White