ATLAS Update

Asteroid Terrestrial-impact Last-Alert System

Larry Denneau, Jr. and the ATLAS Team
IAWN Steering Committee Meeting, 26 October 2023

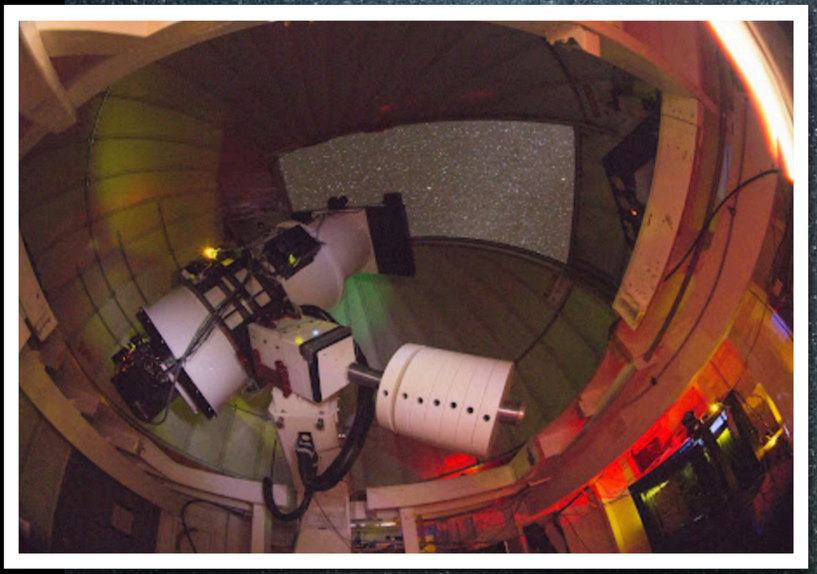
ATLAS dome at El Sauce Observatory, Chile

Operations

Stable 3-telescope operations: Hawaii, South Africa, Chile

ATLAS Mauna Loa offline since November 2022 due to eruption

ATLAS PUMA software enabling transition from 30s to 110s exposures, improving sensitivity from ***m*=19.5 ⇒ *m*=20.2**



ATLAS Haleakalā telescope

System Specifications

Each telescope 30 deg^2 (5.4 × 5.4), ~3.5″ PSF

0.5m $f/2$ Schmidt, 110 Mpix STA1600 detector, 1.9″ pixels

Gaia astrometry, Refcat2 (Pan-STARRS+) photometry

Tonry *et al.* 2018 PASP (arXiv:1802.00879)

Sensitive to m=19.5

20m ⇒ ~days before impact, 100m ⇒ ~weeks

ATLAS Mauna Loa (Shinsuke Abe)

ATLAS Mauna Loa

Installing stand-alone solar power

Can run ATLAS for 1-2 days

Significant downsizing of on-site compute facilities (data processed at IfA Mānoa)

Still only helicopter access!

Downlink via UH radio, ~0.5 Gbps

All gear is operational after the eruption

Expect to be operational in November 2023

USGS

Just commuting to work…

ATLAS #5, Tenerife (in commissioning)

Inistituto de Astrofísica de Canarias

To be constructed and operated by IAC (already funded!); site has been selected

Similar to original 2013 ATLAS concept using COTS components

Synthetic tracking possible

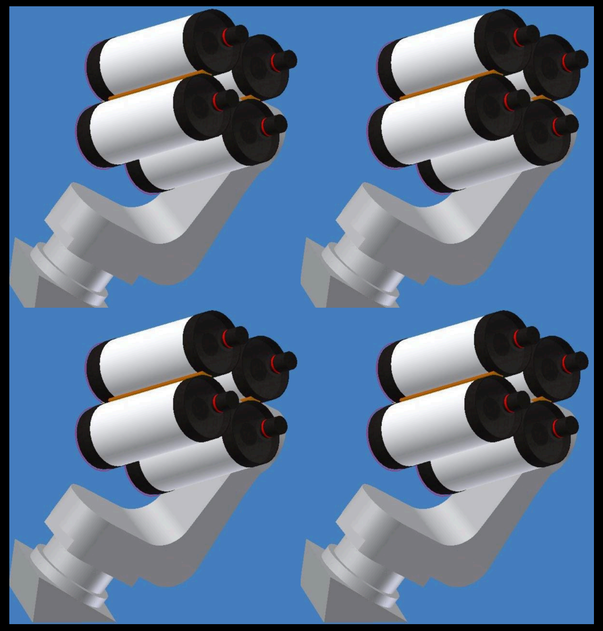
Single building block is (mostly) operational

Grappling with collimation/alignment/focus

Sensitive to V=20 (without synthetic tracking)

ATLAS 5 “building block”

4X Celestron RASA 11
+ QHY 600 (CMOS)



== 1 ATLAS telescope
@ half the cost