



# KMTNet – Korean Microlensing Telescope Network

Byeong-Gon Park, Korea Astronomy and Space Science Inst.  
The first Micro-FUN workshop in Auckland, NZ Dec. 15-18

# Purpose of the project

2

- Discover the first Earth-mass exoplanet
- A huge number of exoplanets in wide mass range can be detected by microlensing
- A huge number of variable stars can be detected and studied (e.g. OGLE)

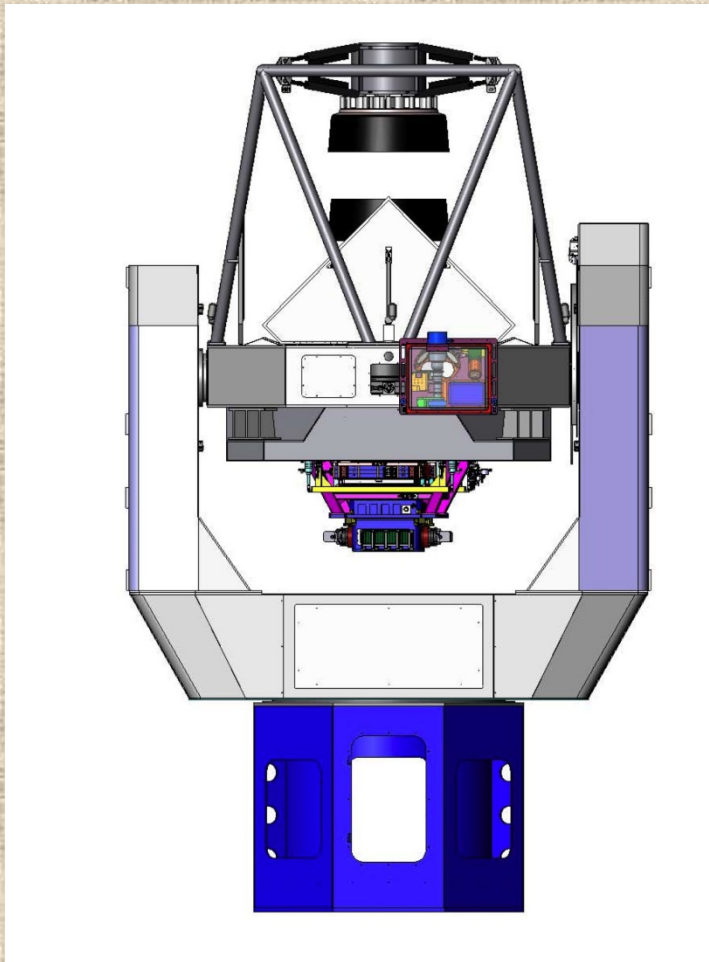
# How to detect Earth?

3

- Larger Aperture : 1.6m diameter
- Wide observing field : 4 degree x 4 degree
- More frequent observation : 1 exposure / 10 min.
- 24-hour coverage : 3 telescopes in 3 continents
  - No more Alert & Follow-up observation
  - Higher detection rate for microlensing events due to larger field & high cadence observation
  - More sensitive to small and short anomaly in light curve due to low-mass planets

# Telescope

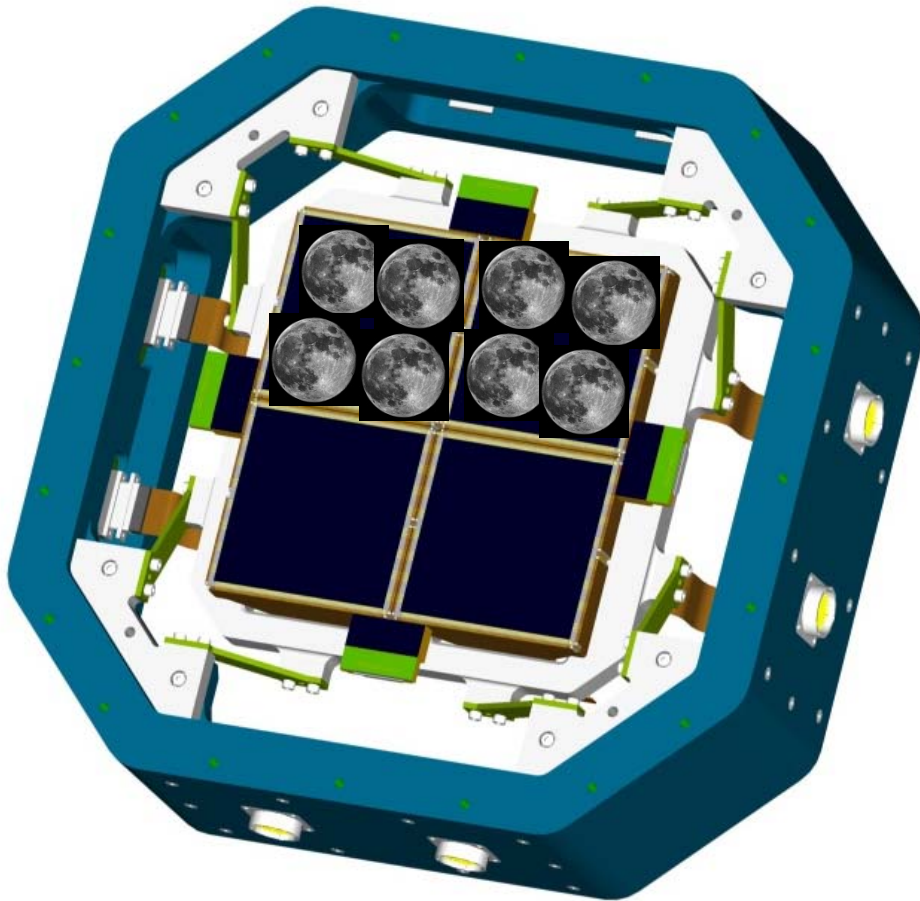
4



- Primary mirror : 1.6m
- FOV : 2 x 2 deg
- Prime focus or Cassegrain
- Cf. Pan-Starrs

# Camera

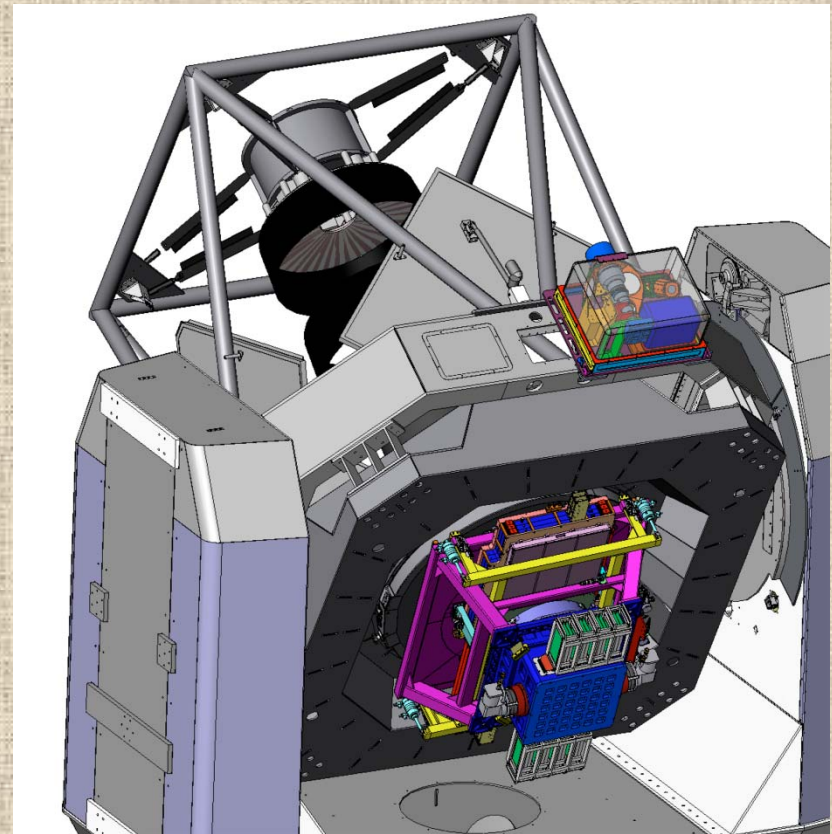
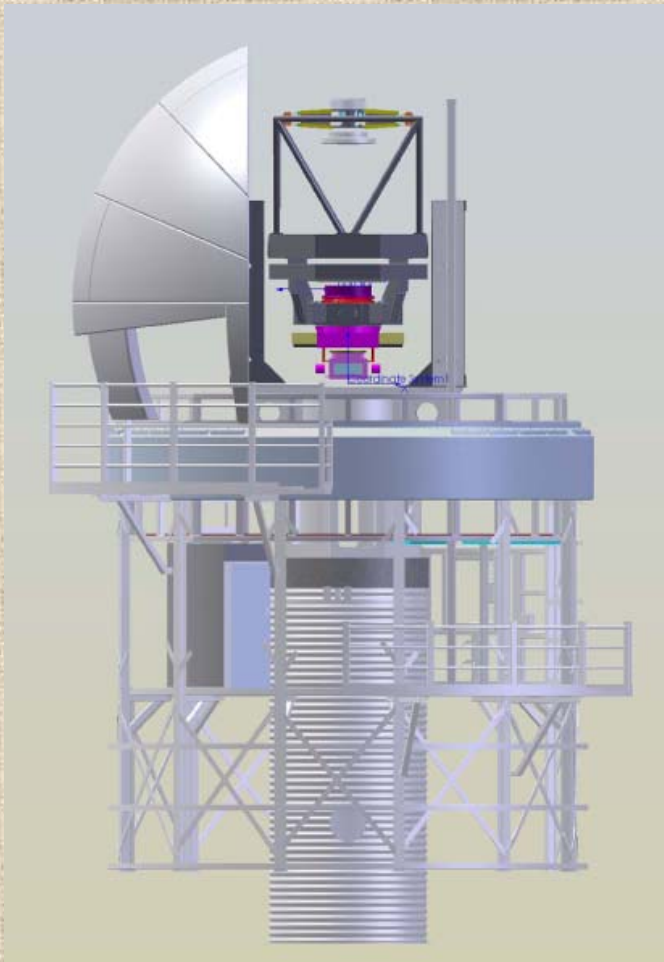
5



- 20k x 20k pixels
  - 4 – 10k x 10k CCDs
  - 0.36 arcsec / pixel
- 2 deg x 2 deg FOV
  - Can hold 16 full moons

# Schematic View of the Telescope

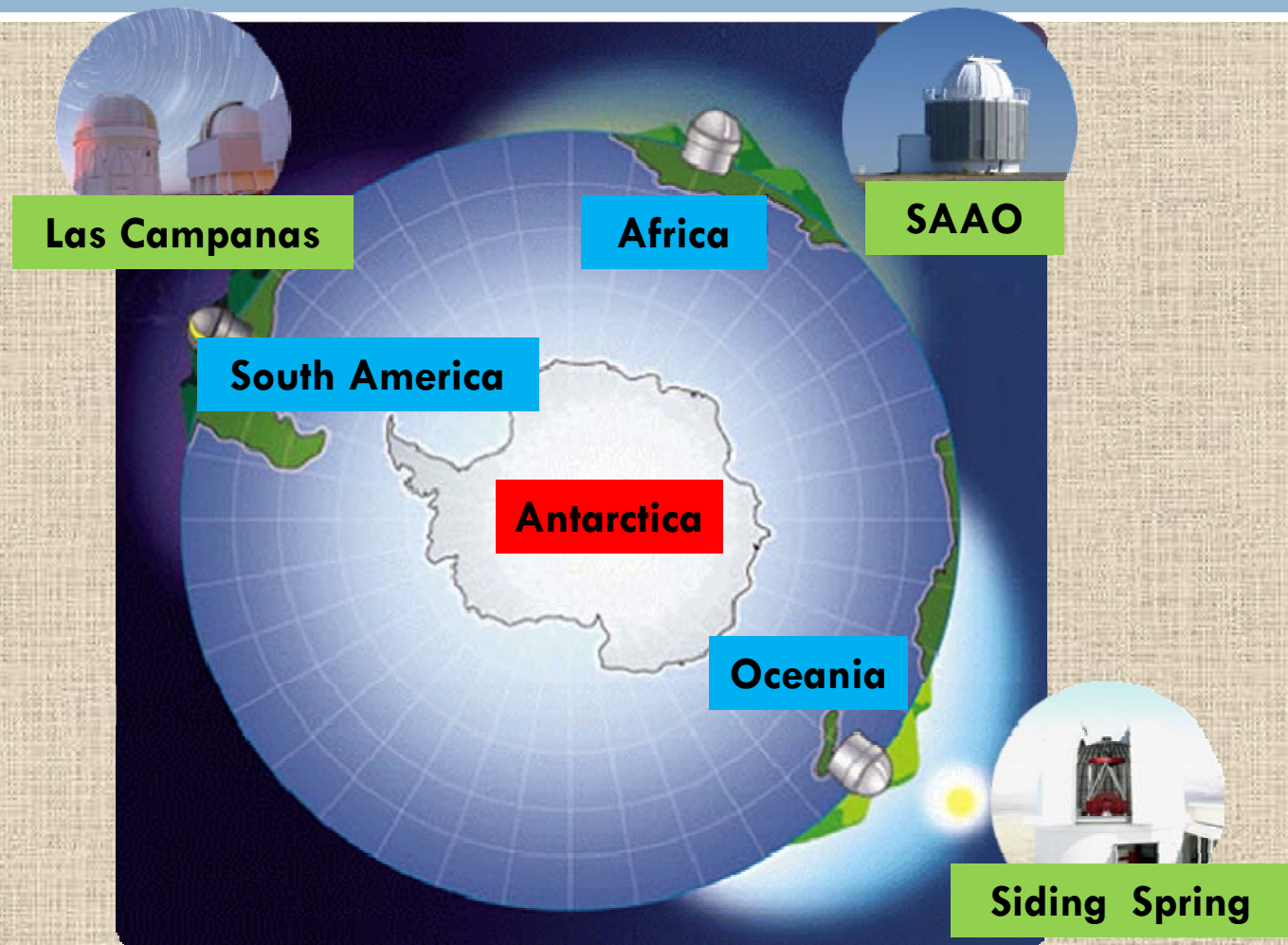
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Pan-Starrs

# Candidate Sites

7



# Project Status

8

- Project Period
  - 2009 ~ 2018
- Budget : 30 billion Korean Won (~ 30M USD)
  - 3 telescopes
  - 3 mosaic cameras
  - Center for Data processing and analysis
- Granted by the national assembly of Korea on Dec. 13<sup>th</sup> as a KASI Research and Development project.



# 2008-2009

9

## □ 2008

- ▣ Overall project planning to get funds from the government
- ▣ Telescope optics design nearly fixed
- ▣ Choice of CCD sensor for wide field mosaic camera

## □ 2009

- ▣ We will make contract for telescope and camera system
- ▣ Build 40cm telescope system for site evaluation and follow-up observation
- ▣ Initial work for data processing and analysis
- ▣ Site preparation negotiation



**Thank You !!!**