Overview of EHT

Izumi Mizuno

Contents

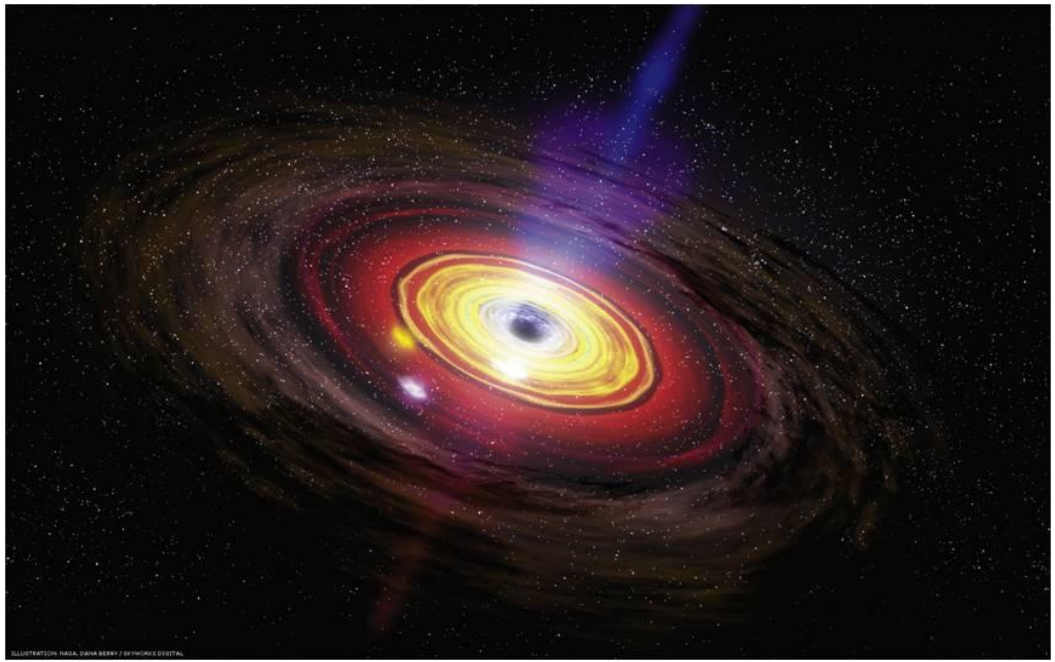
Aim+how to the reach Aim

How important JCMT is.

overview of EHT

Future plan of EHT

Aim



Take a picture of black hole shadow located center of our galaxy, and another galaxy named M87

ref: https://www.universetoday.com/30719/active-galactic-nuclei/

How to reach high resolution

Bigger telescope -> higher resolution

baseline = distance between two annenas
longer baseline -> smaller structure

ref:https://www.cv.nrao.edu/course/astr534/Interferometers2.html

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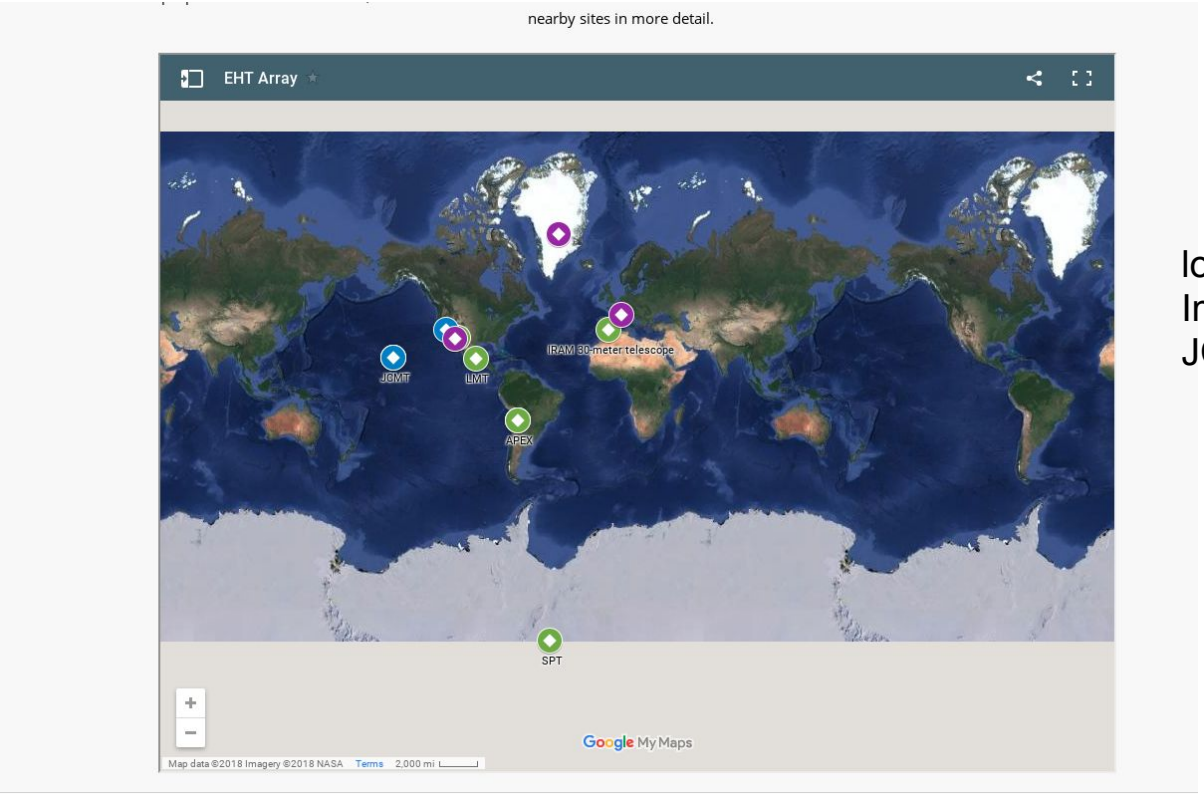
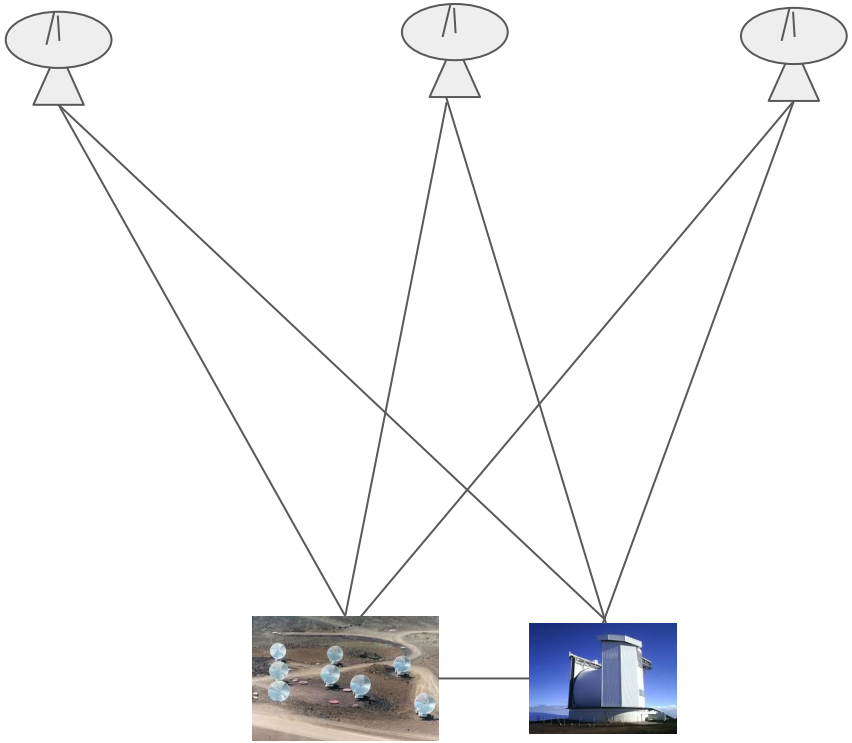
How important JCMT is for EHT.



long distance: higher resolution
Image change by JCMT+SMA
JCMT and SMA use network calibration

ref: https://eventhorizontelescope.org/array

Network calibration



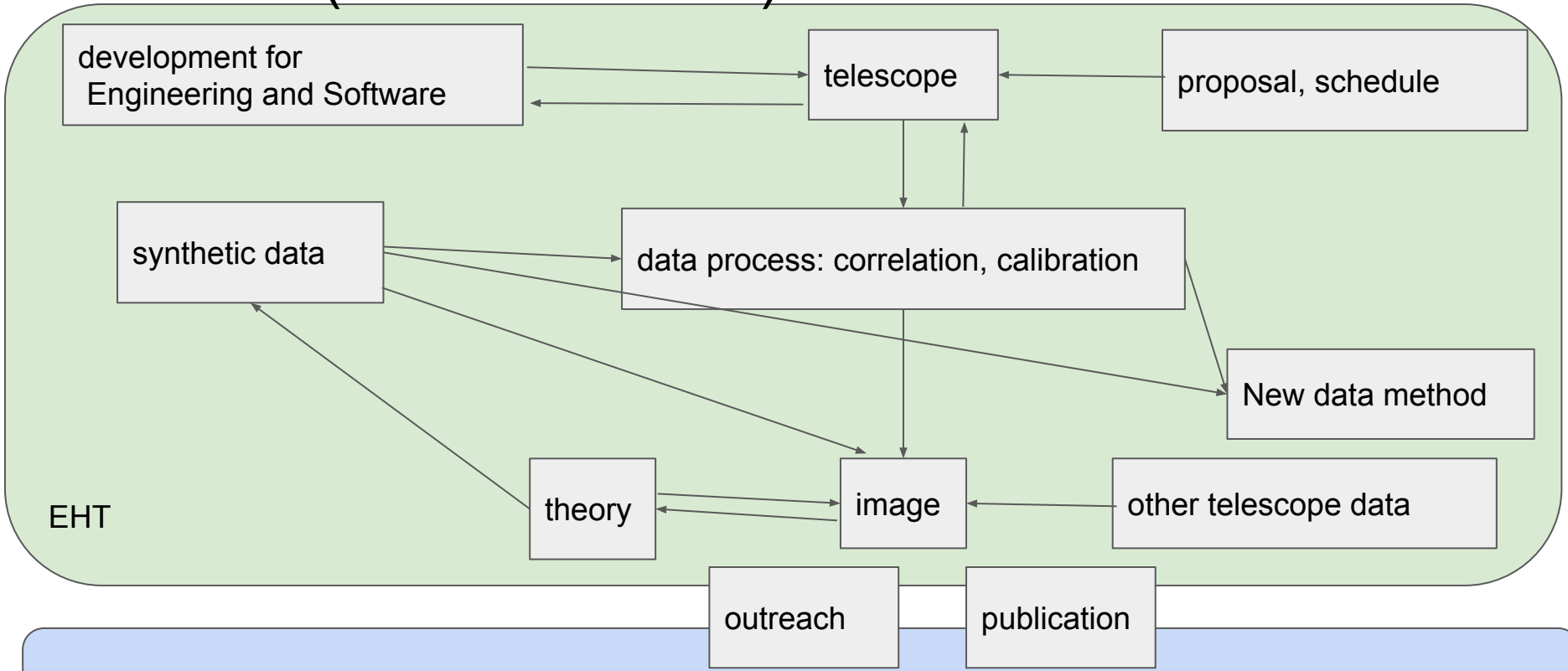
Apex

ALMA

JCMT is Important!

Overview (How EHT work)

19 working Groups



Overview

Geoffrey et al.

Science Council

Paul et al.

EHTC Board

Shep

Director

Remo et al.

Project Scientist

Project Manager

Per et al.

Science Working Groups

Technical Working Groups

Future perspective EHT

[publication]

Data examination on going and the papers from instrumentation to theories will be published beginning of next year including instrumentation paper with JCMT status.

[next science observation]

March 25 - April 3 UT (IRAM 30M, NOEMA, SPT, GLT, ALMA, APEX, LMT, SMT, KP, SMA, JCMT)

[Wish list]

new frequency band (345 GHz) observation (less scatter, high resolution, spectrum index..etc)

increase telescope numbers

Backup slides

Working groups

Instrumentation WG

current and future instrumentation

Integration and Verification WG

integration? make checklist for VLBI equipment

Monitoring and Control WG
development monitor and control utility

Array Coordination and Readiness WG

Interface between EHT and participating telescopes

Working groups

Proposal Coordinatioin WG

monitor proposal submission deadline

Science Operations WG

encompasses all aspects of monitoring EHT observaiton

Correlation WG

Correlate EHT data and downstream WGs

Calibration & Error WG

Develops methods and software for performing calibration and characterize errors for downstream analysis

Synthetic Data WG

Create Synthetic Data for multi purpose (exp: examine whether effect, development calibration method)

Working Groups

Imaging WG

make image using calibrated data

Scattering WG

development for calibration method of scattering

Time Domain WG

Identify optimal observation and development to examine time variation

Working Groups

Parameter Definition WG

find out parameters for science target source from EHT and other observations

Theory and Simulation WG

Make theoretical simulation model with various parameter to compare observation data

Model Comparison & Feature Extraction WG

Make tool to compare mode

Multiwavelength Science WG

identify multiwavelength (Xray, IR ..etc) observation either historical and during EHT observation to maximize the results

Non-horizon Science/AGN WG

Working Groups

Publication WG

Outreach WG

Play a role as a bridge between EHT and the public. maintenance of public image of the EHT in the media, creation of new education and outreach material, generation of materials for professional and public talks by EHT memvers