

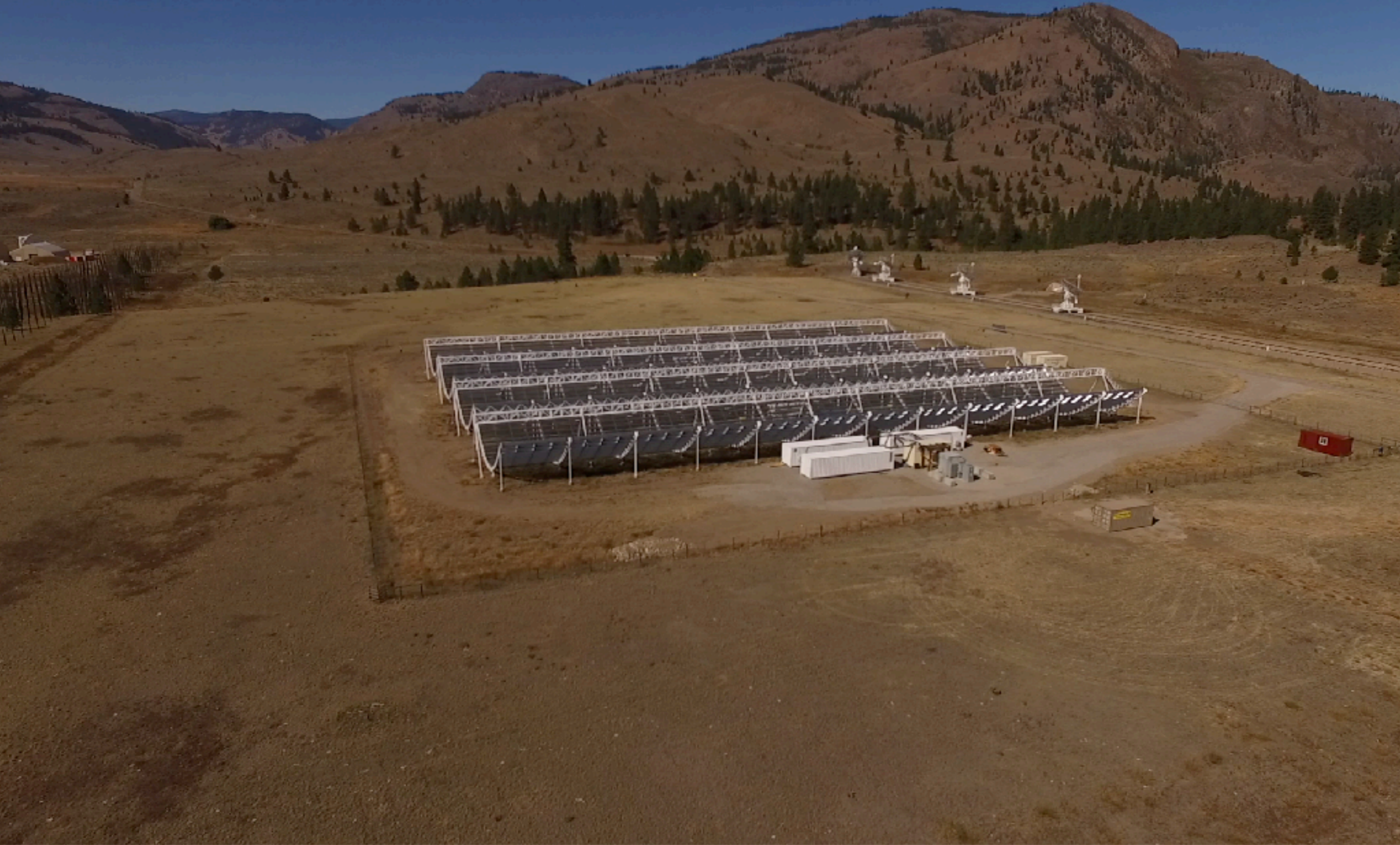
# Canadian Hydrogen Intensity Mapping Experiment

Richard Shaw



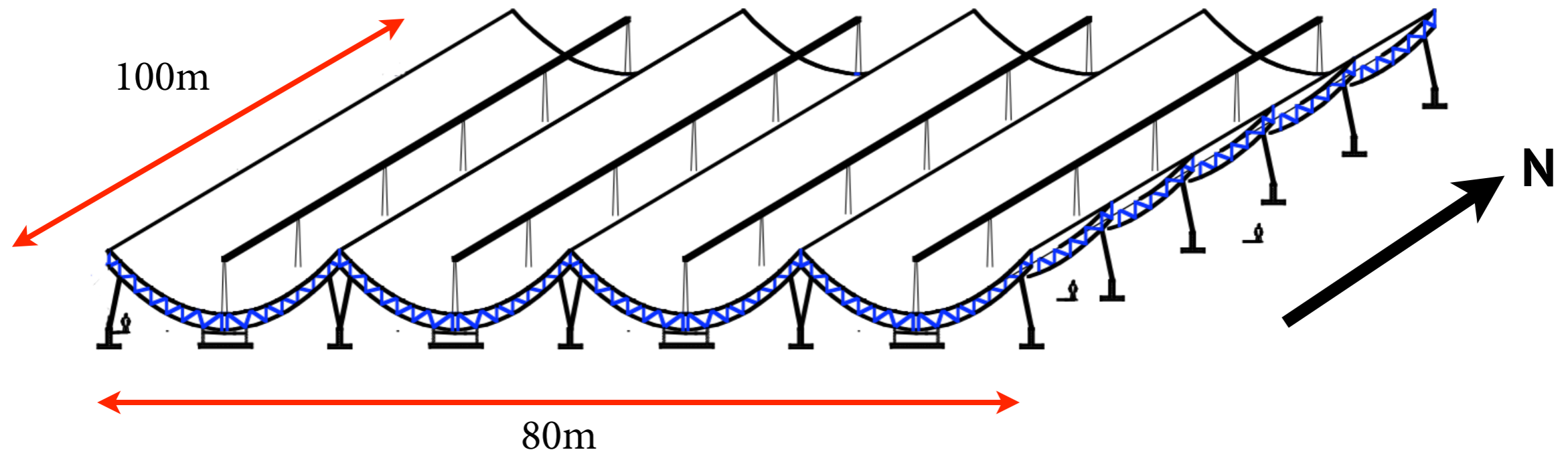
a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

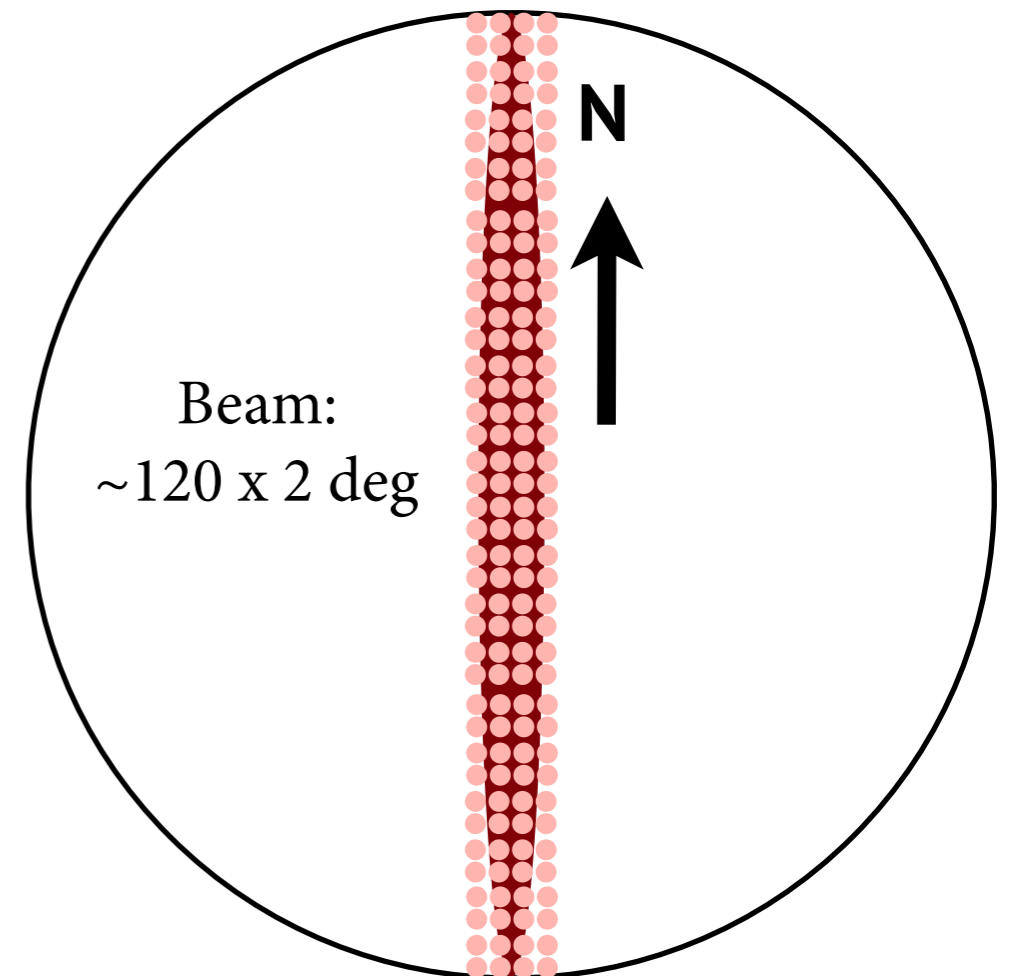


<http://chime.phas.ubc.ca>

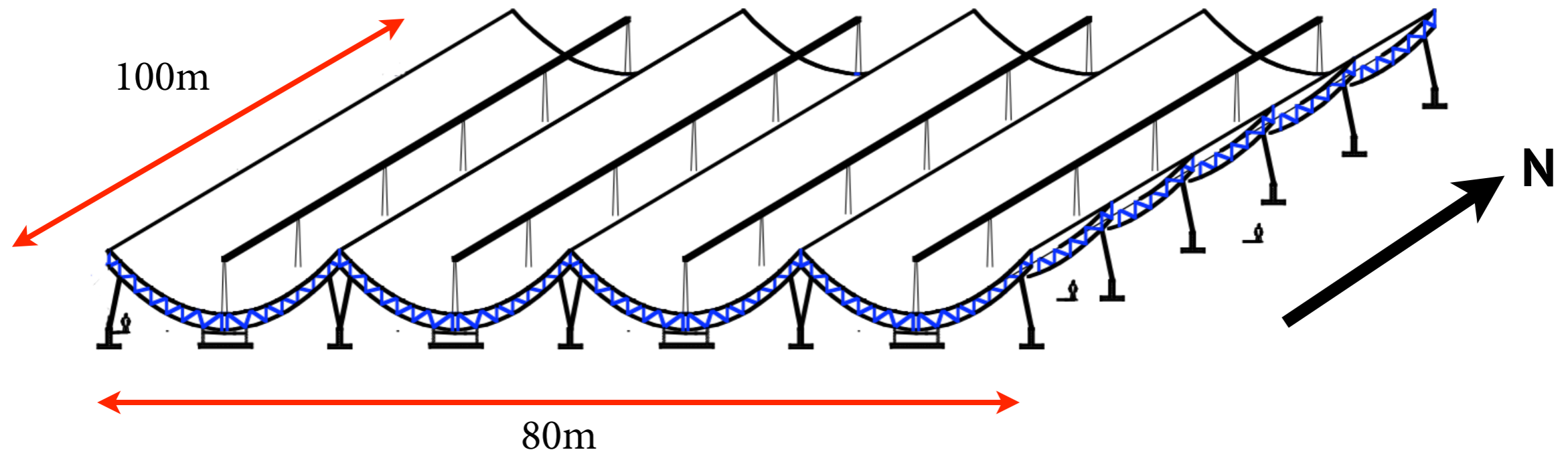
# CHIME Overview



- 120 x 2 degree FoV
- 7x511 beams = 15 arcmin resolution
- Transit radio interferometer
  - ▶ Observe between 400-800 MHz
  - ▶ 1024 dual pol antennas ( $T_{\text{recv}} = 50\text{K}$ )
- Located at DRAO in BC
- Just started commissioning

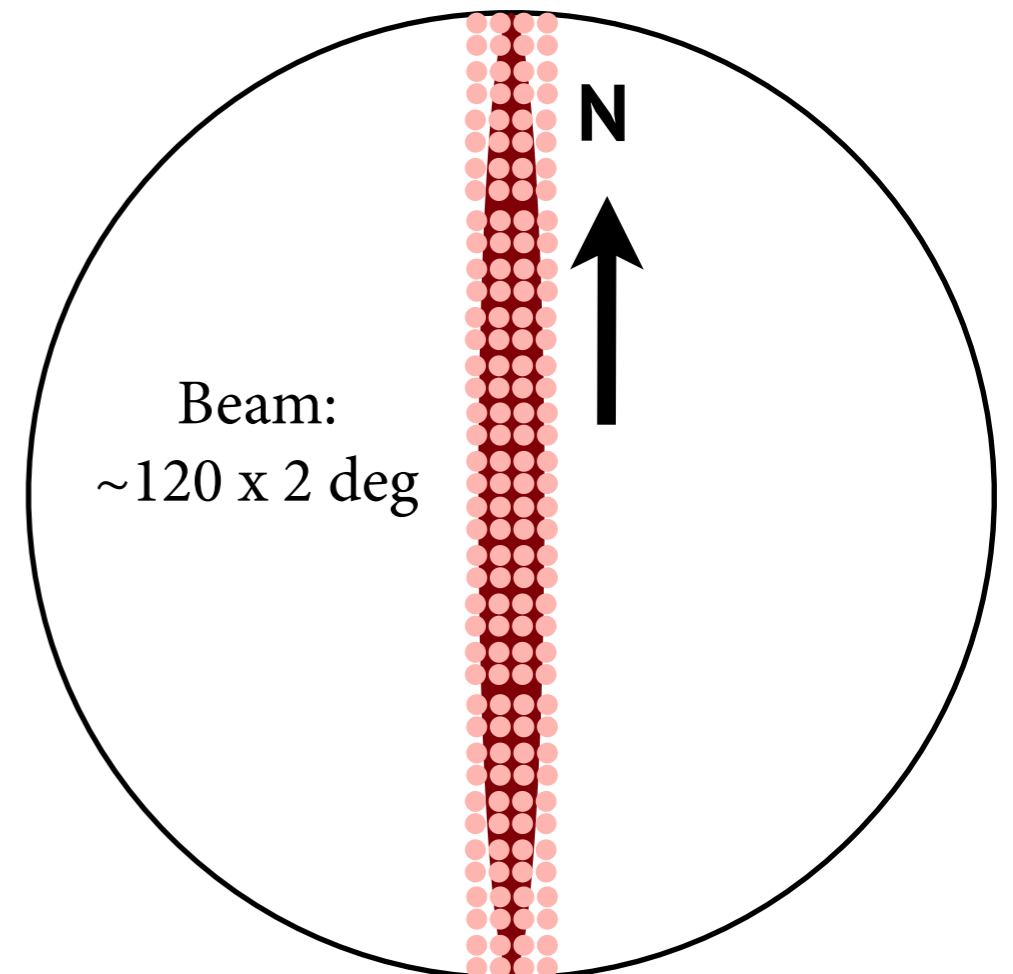


# CHIME Overview



- Science Goals

- ▶ Intensity mapping for BAOs
- ▶ Pulsar observations
- ▶ Radio transients



CANADA



bald eagle

muskox

wendigo

gyrfalcon

arctic fox

narwhal

snowshoe hare

cougar

caribou

polar bear

harp seal

black bear

mountain goat

snowy owl

puffin

white tailed deer

moose

mink

orca

big horned sheep

wolf

grey squirrel

blue jay

lobster

salmon

leopard frog

beaver

blanding's turtle

golden winged warbler

wood duck

robin

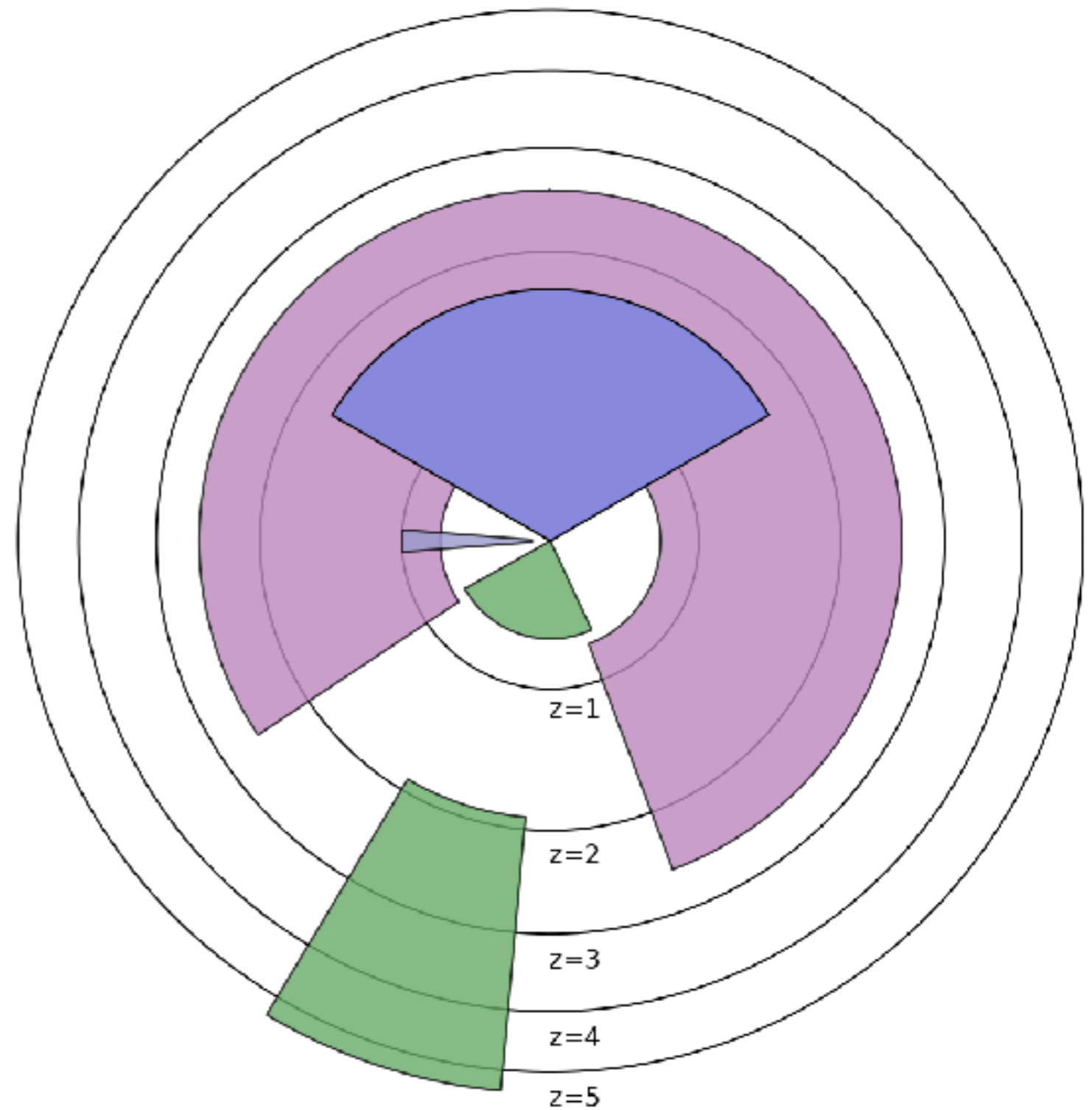
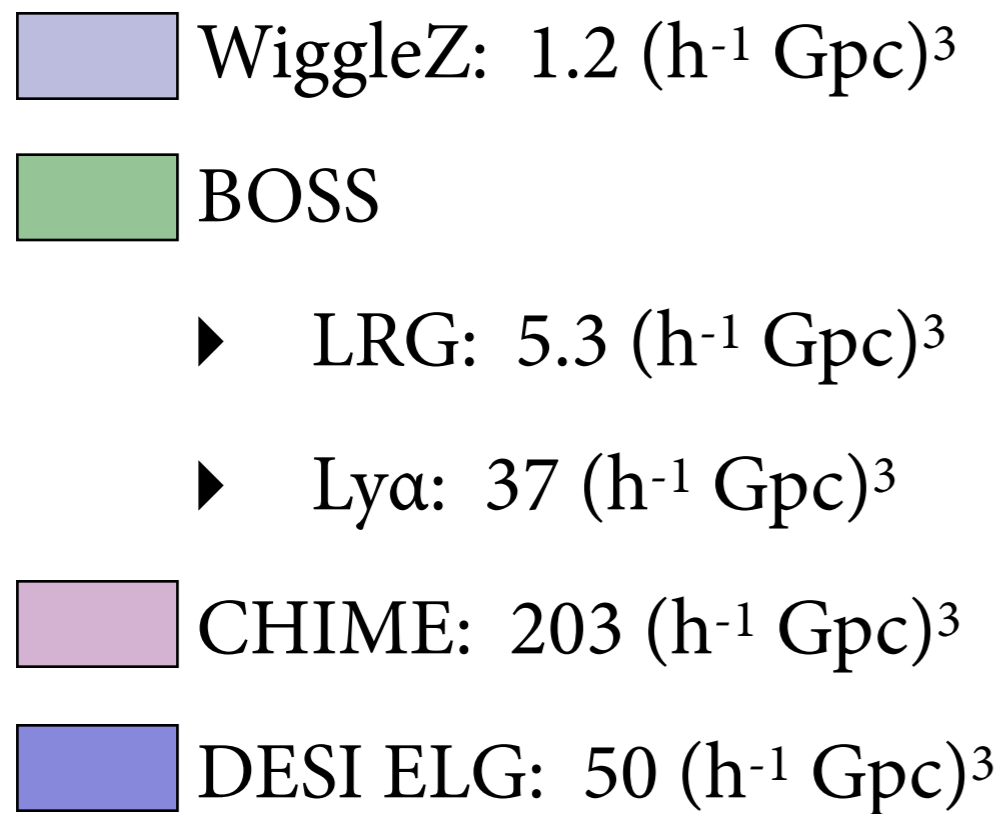
beaver

loon

CHIME

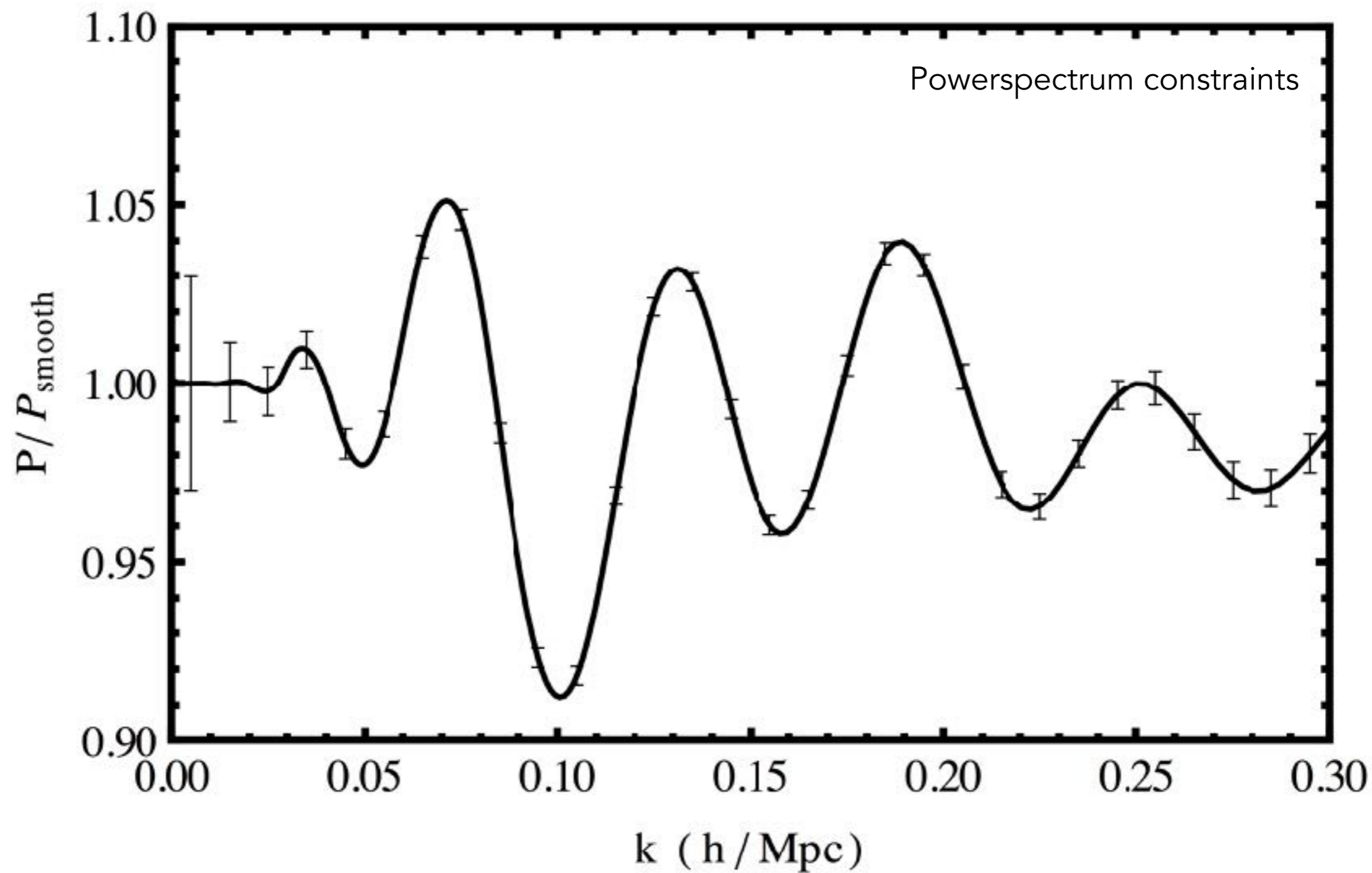


# Survey Volume

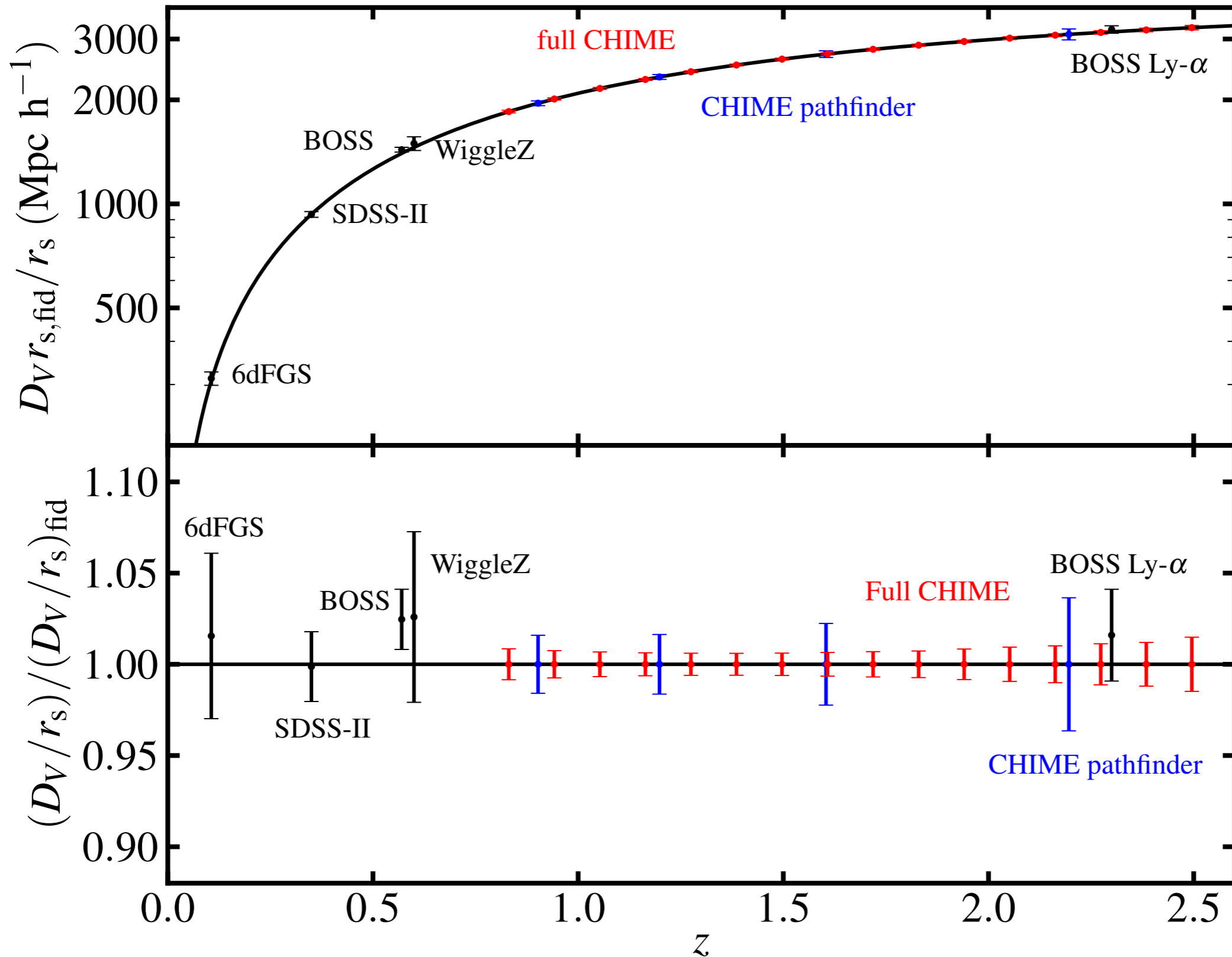


Scaled such that:  
area of patch = volume of survey

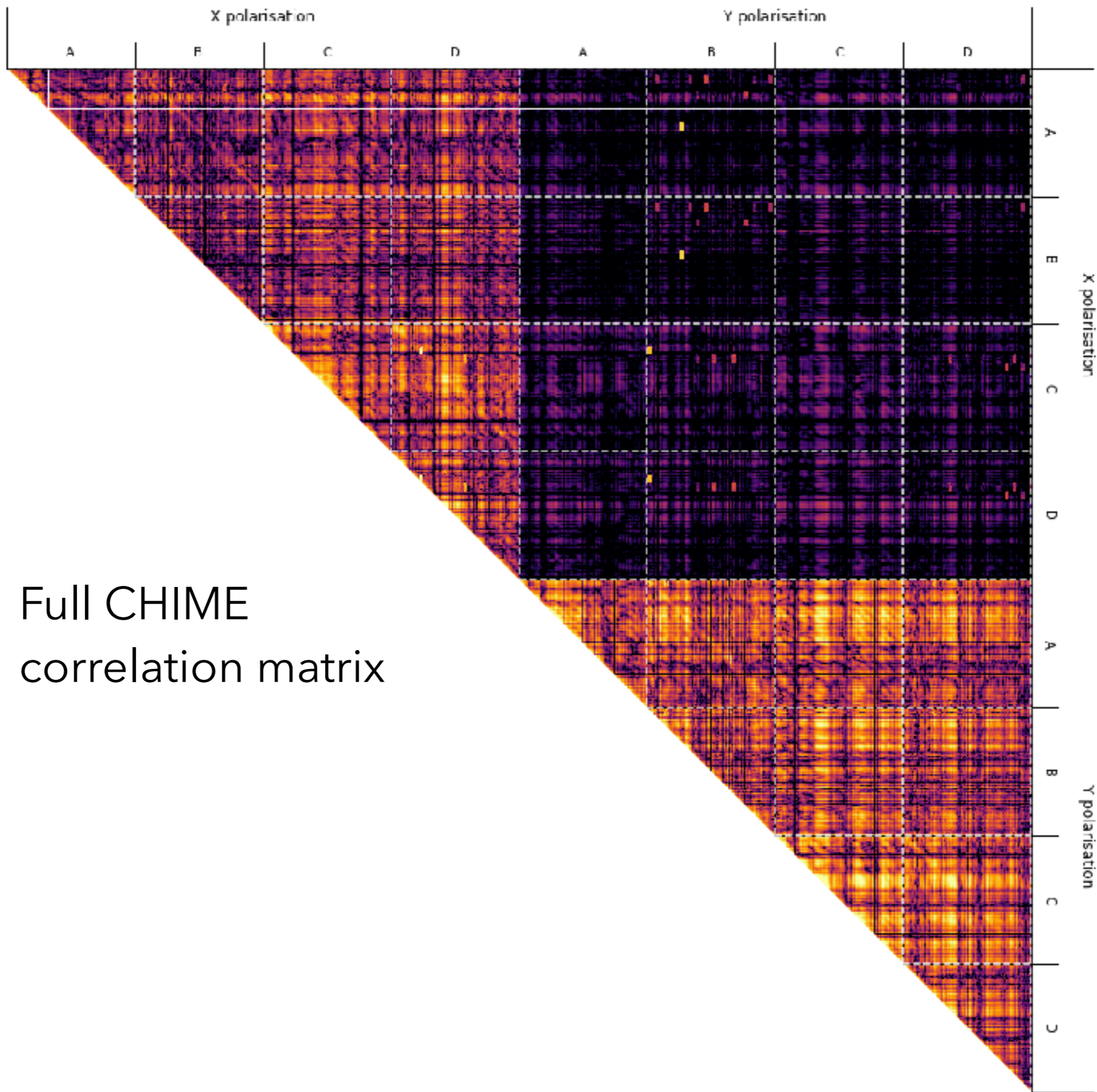
# BAO Forecasts



# BAO Forecasts







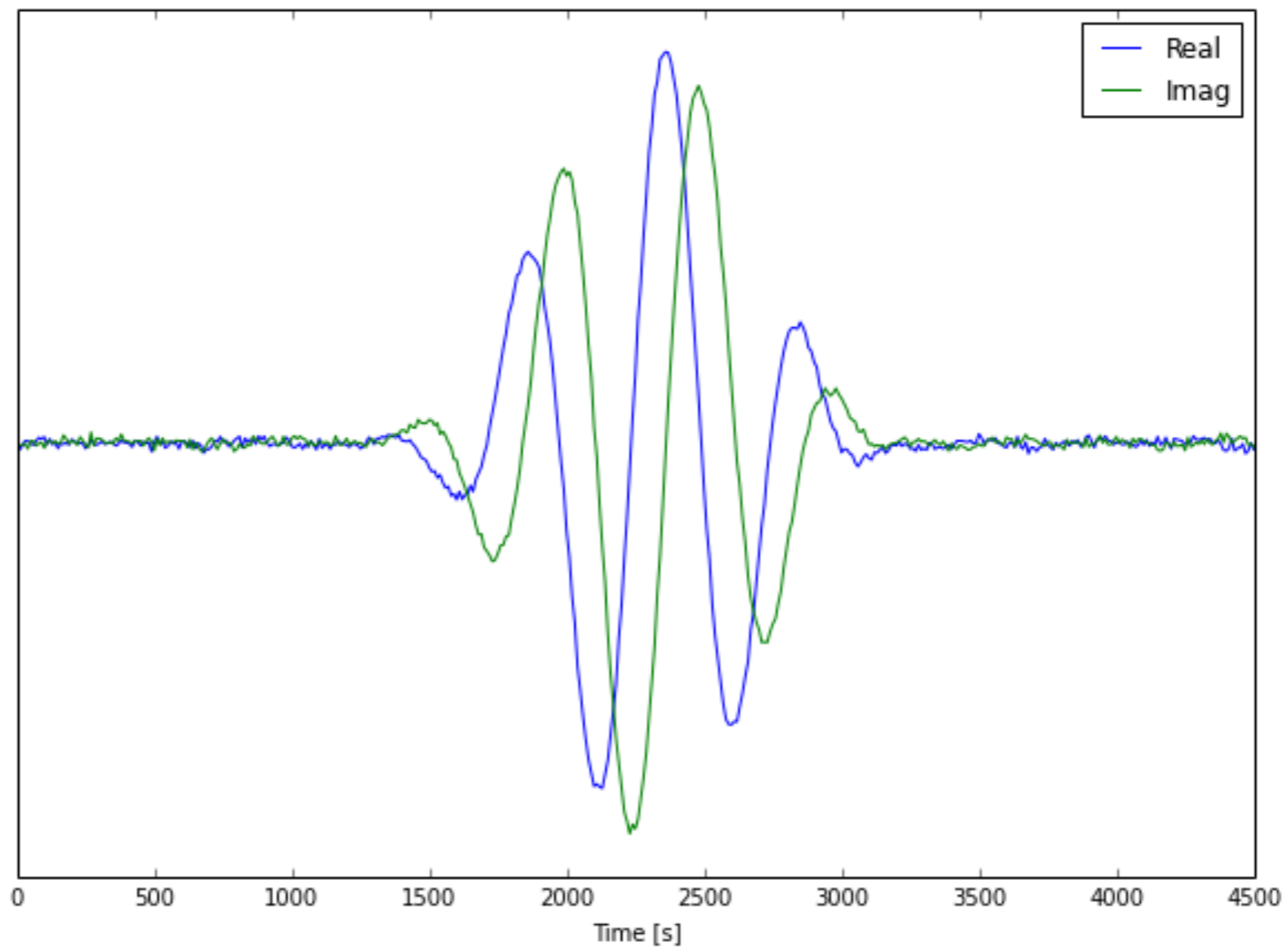
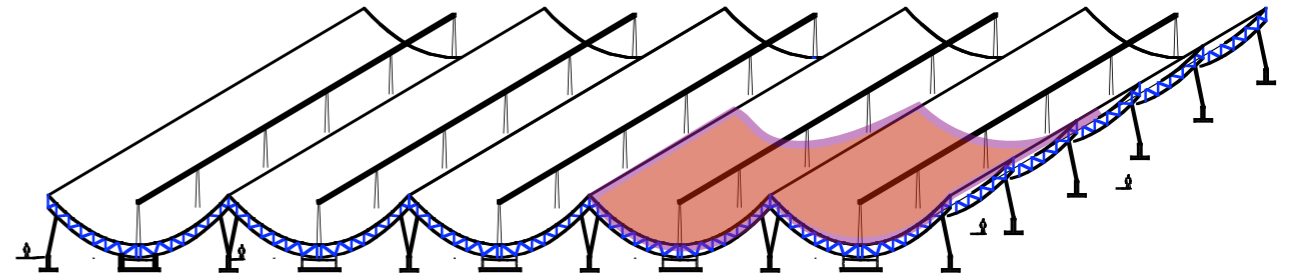
Full CHIME  
correlation matrix

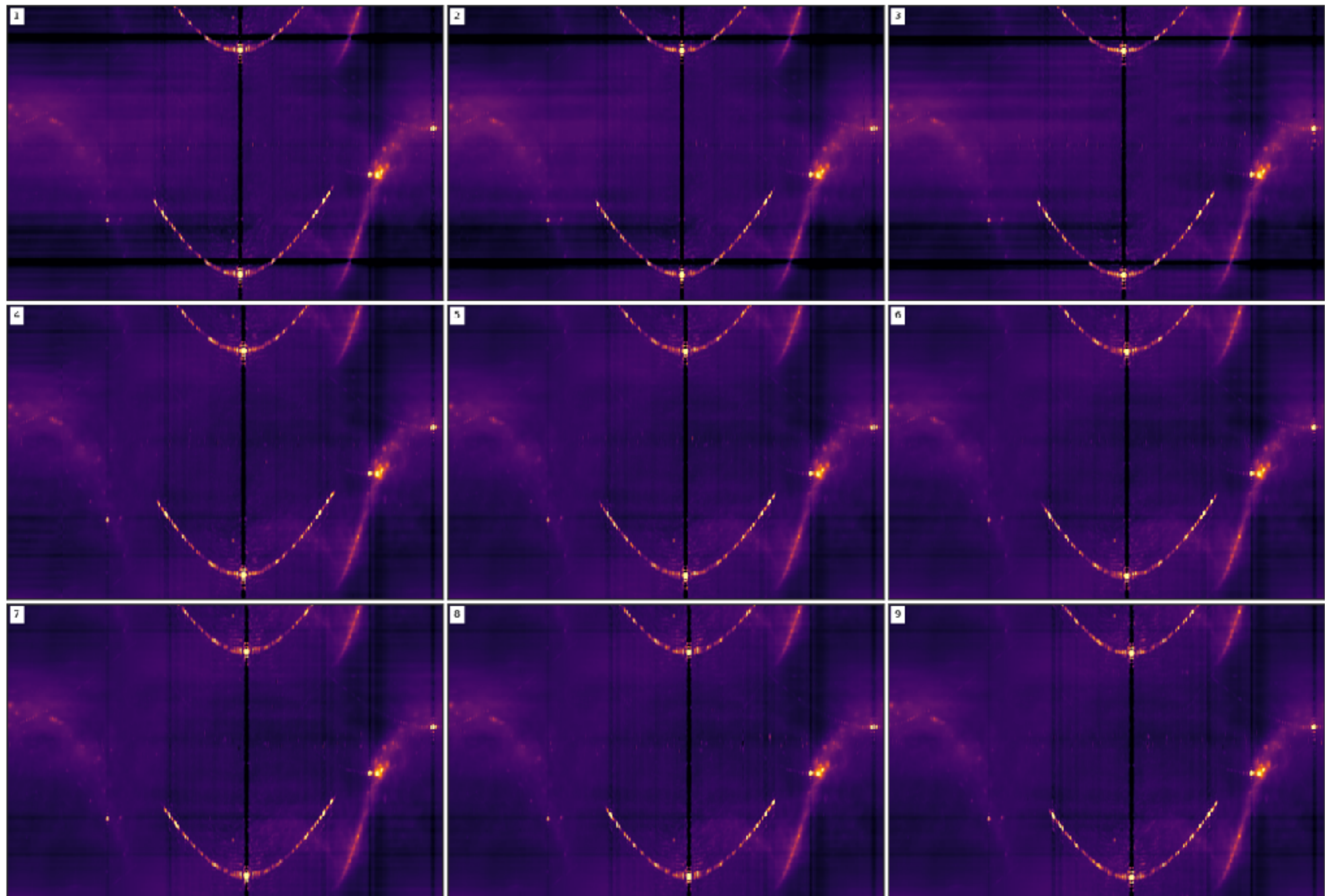
# CHIME Pathfinder



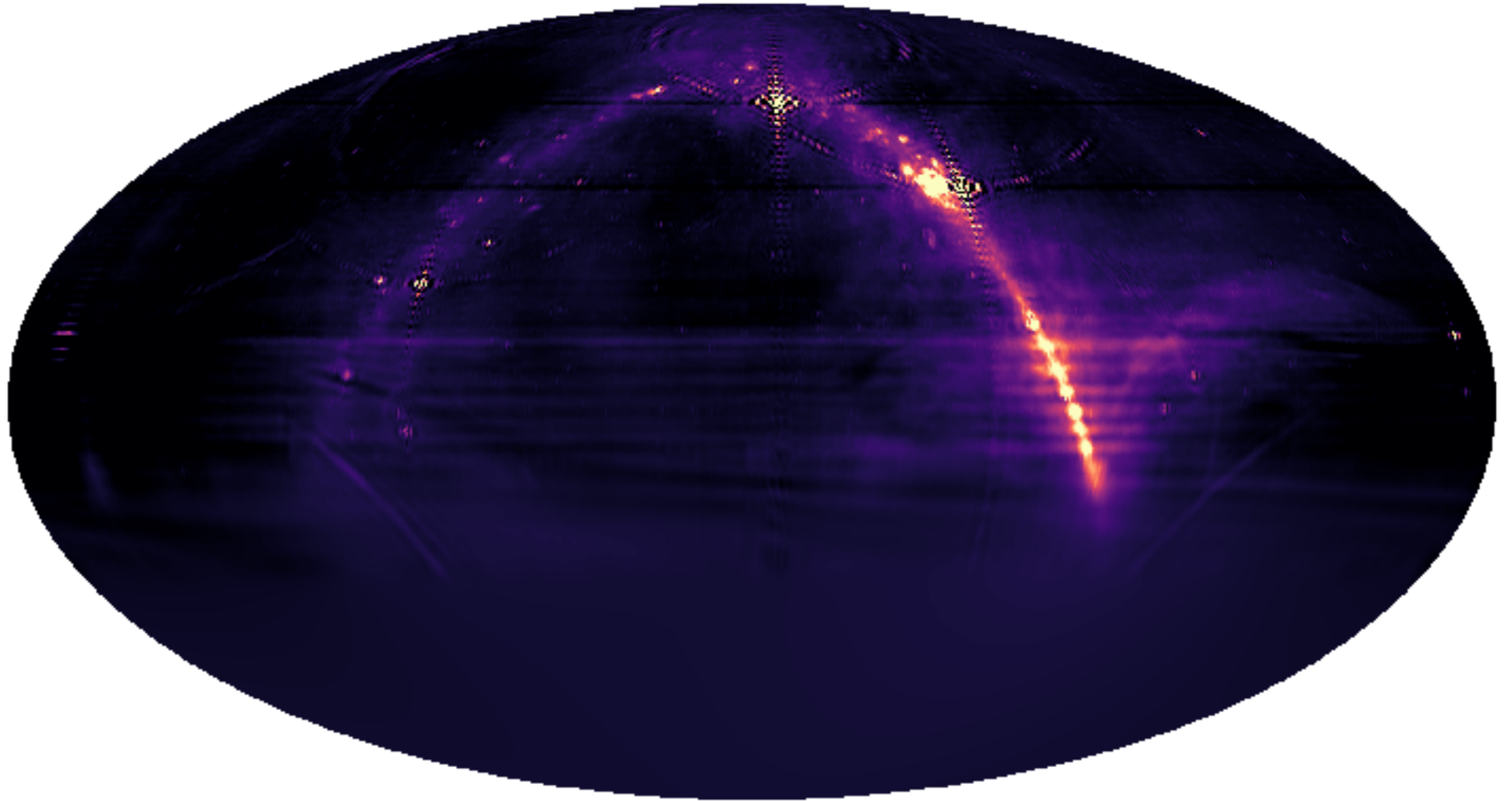
# CHIME Pathfinder

- 2x20m cylinder, 40m long
- First light was late 2013
- Commissioning finished early 2015





# Map



Map made from CHIME  
Pathfinder data

# Summary

- CHIME will map more than half the sky from  $z=0.8-2.5$
- Full CHIME recently started commissioning
- Pathfinder is currently running
- Analysis of Pathfinder data is ongoing