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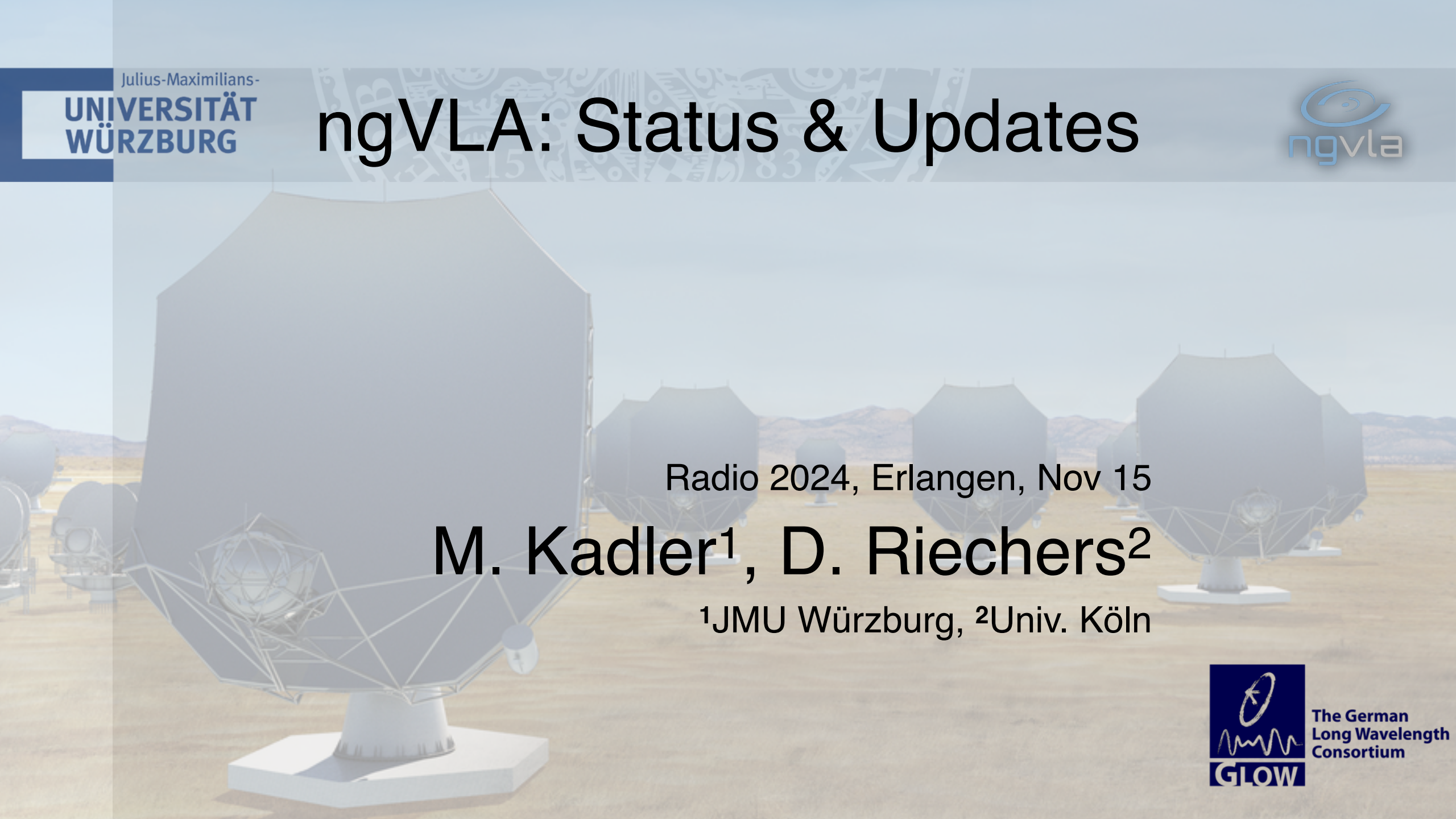
ngVLA: Status & Updates

ngvla



Radio 2024, Erlangen, Nov 15

M. Kadler[1], D. Riechers[2]

[1]JMU Würzburg, [2]Univ. Köln

GLOW
The German
Long Wavelength
Consortium

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Reminder: Overview

ngvla

Sensitivity:
about 1-2 orders of magnitude superior to current instruments (VLA, VLBA)

Key design choice: Antennas in fixed locations
- Year-round access to all angular resolutions
- PI-driven facility providing "science sub-arrays"

- **Frequency Range**: 1.2 - 116 GHz
- **Main Array**: 244 x 18m offset Gregorian Antennas
  - **Core**: 114 antennas; B_{max} = 4.3 km
  - **Spiral**: 54 antennas; B_{max} = 39 km
  - **Mid**: 46 antennas in NM, AZ, TX, MX; B_{max}=1070 km
  - **Long**: 30 antennas across continent; B_{max}= 8860 km
- **Short Baseline Array**: 19 x 6m offset Greg. Antennas
  - Use 4 x 18m in **Total Power mode** to fill (*u,v*) hole

Band #	freq. range (GHz)
1	1.2 - 3.5
2	3.5 - 12.3
3	12.3 - 20.5
4	20.5 - 34
5	30.5 - 50.5
6	70 - 116

(1.2 - 116) GHz Coverage

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Reminder: Overview

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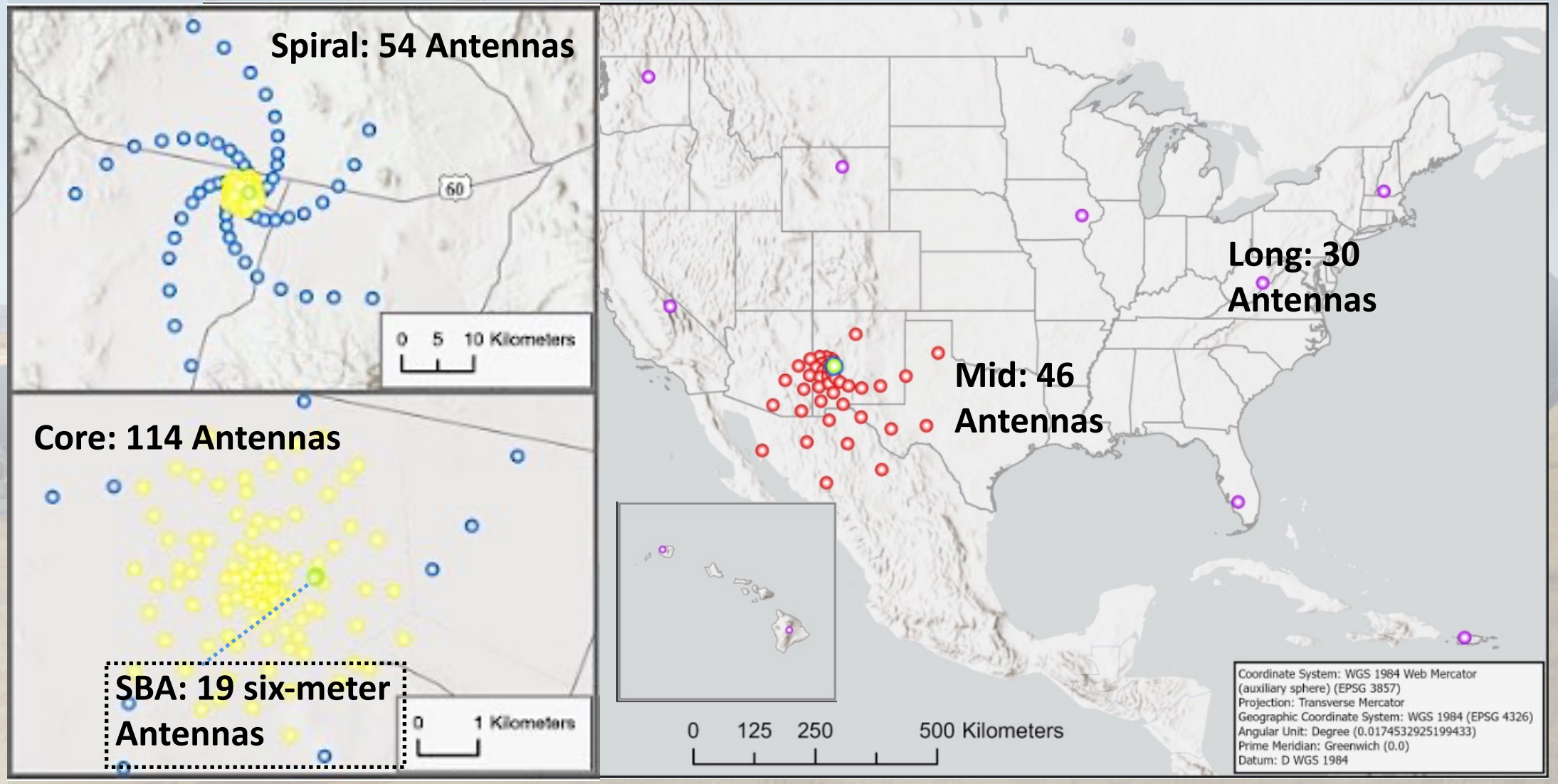
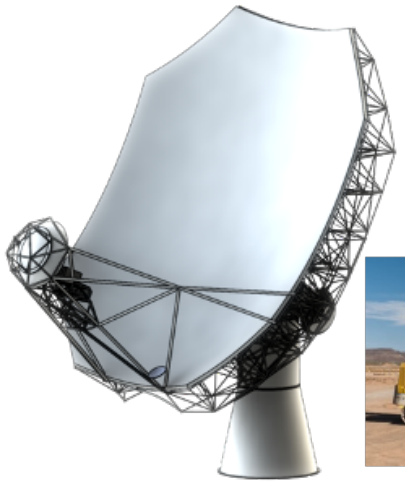
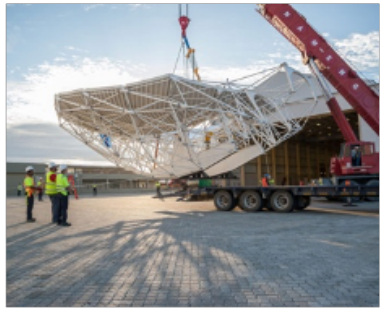
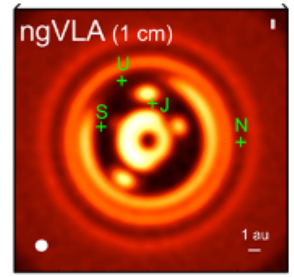
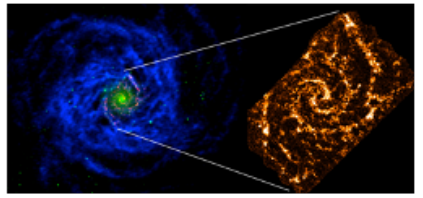


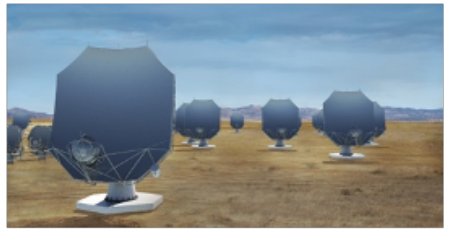
Reminder: Time Line

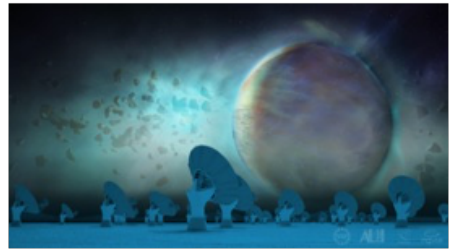












2019 — ngVLA Submission to Astro2020

2021 — Submit ngVLA Proposal to NSF/MREFC

2024 — Prototype Delivered to VLA Site

2028 — Complete NSF/MREFC FDR; ngVLA Construction →

2031 — Initiate ngVLA Early Science (> VLA capabilities)

2037 — Achieve Full Science Operations

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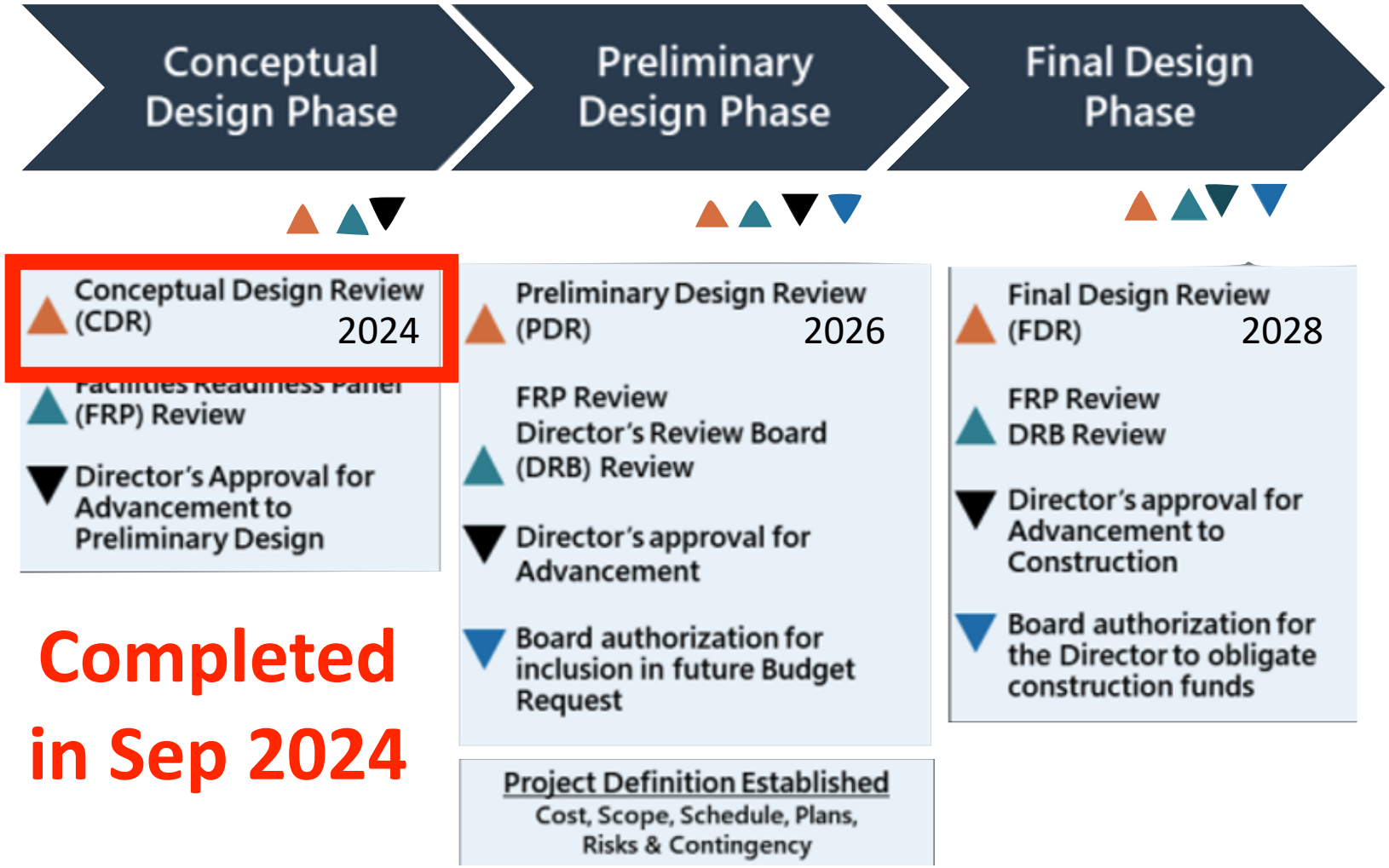
Update: Time Line

ngvla

- Antenna development funded; prototype dish complete and shipped



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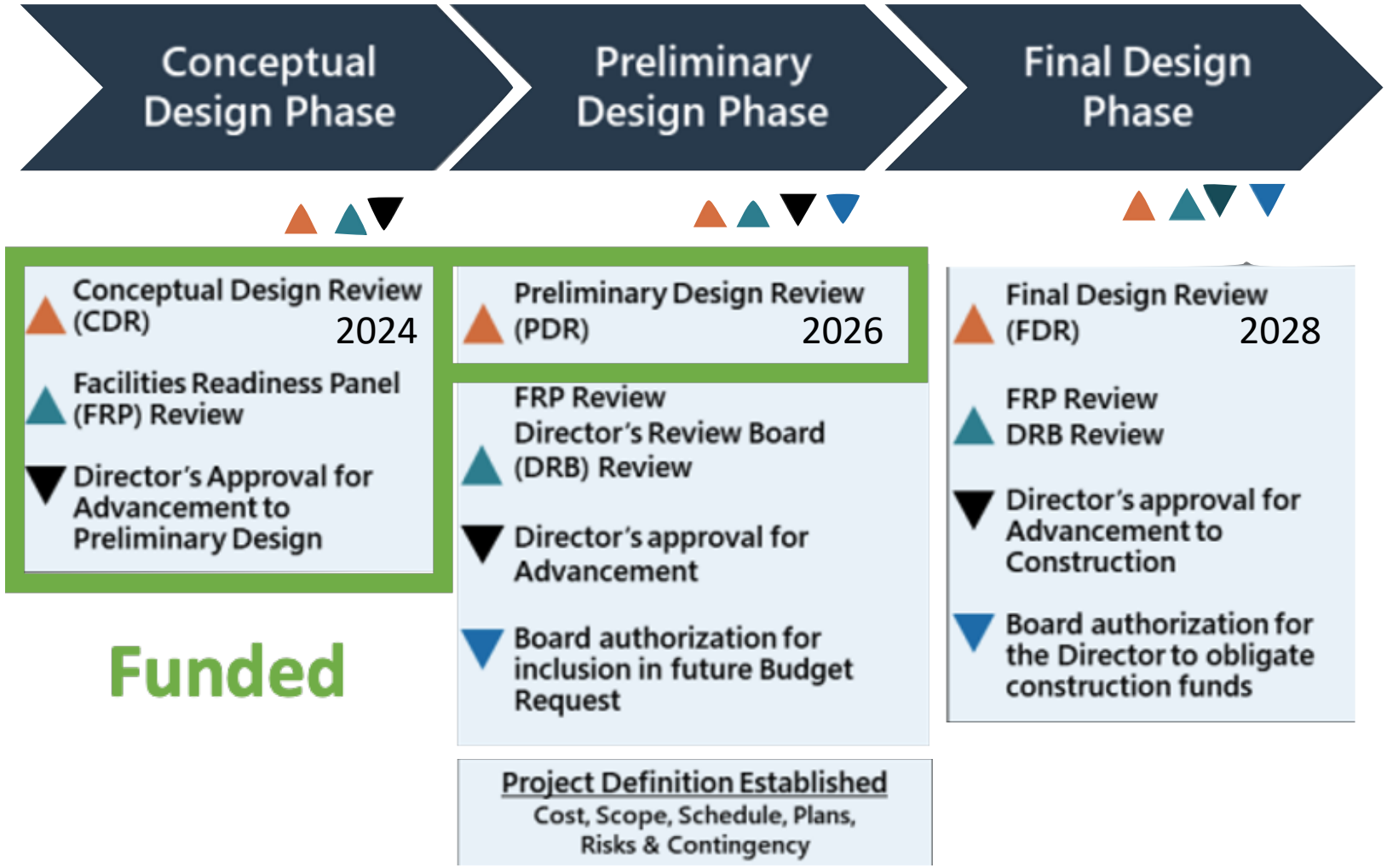
Update: Time Line

ngvla

- Antenna development funded; prototype dish complete and shipped
- Funded to complete PDR (FY 2024-2026)
- *For FDP: Secure international partnership contributions and construction*



ngVLA Key Science Goals

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ngVLA Memo #125

KEY SCIENCE GOALS FOR THE NEXT GENERATION VERY LARGE ARRAY (NGVLA): UPDATE FROM THE NGVLA SCIENCE ADVISORY COUNCIL (2024)

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- Discussions within the state of Baden Württemberg to support Concad in the ngVLA context

CONCAD

Mirrors: Concad, Walldürn

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Update: Prototype Antenna Construction Status

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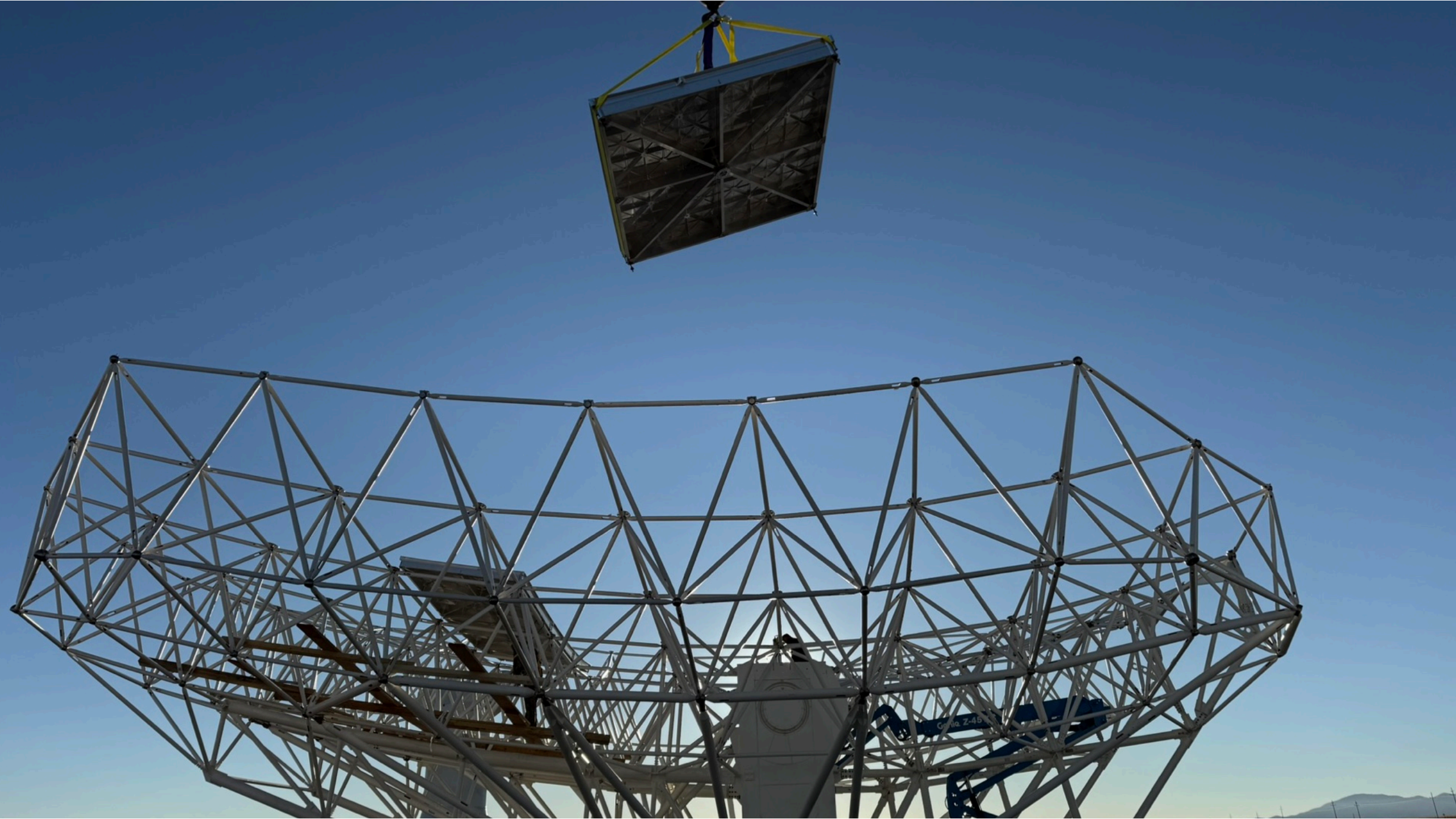
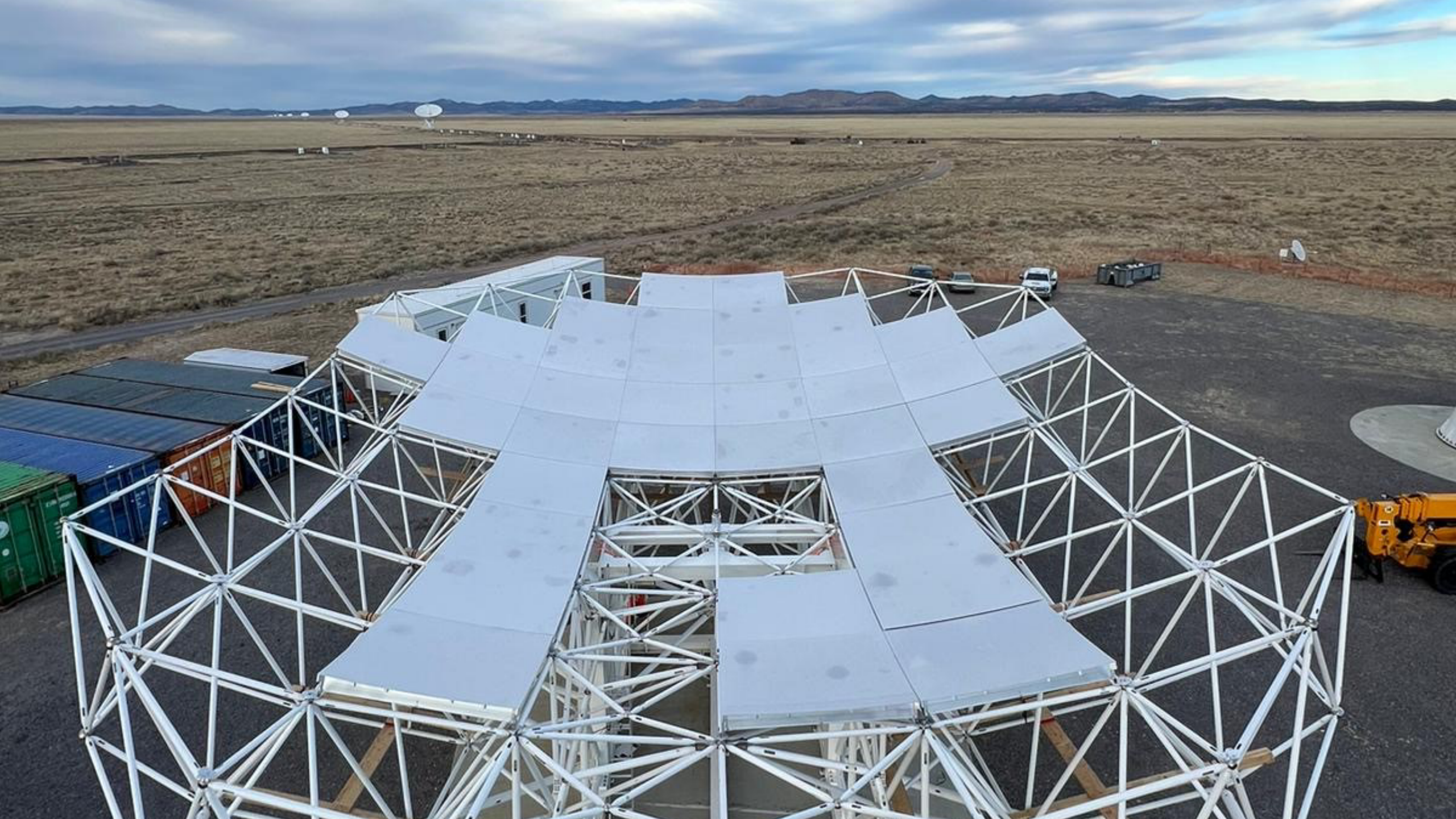
Assembly going on now. Follow it live:
https://public.nrao.edu/ngvla-webcam/

After official handover:

Science Testing, Correlation with VLA Antennas


2024-11-14 09:37:16
NOTICE





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Reminder & Update: International Engagement

- SAC: Canada, Mexico, Japan, Taiwan, Germany (F. Walter, A. Zensus)
- TAC: Canada, Mexico, Japan, Taiwan

- **International Development Consortium (IDC)**
  - Canada, Mexico, Japan, Taiwan
  - Invitation to Germany ⟸ GLOW Council appointed D. Riechers & M. Kadler