

V123a The Next Generation Very Large Array - Spring 2025

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We present progresses of the Next Generation Very Large Array (ngVLA) project in Japan. The ngVLA, led by NRAO, will be operated at frequencies from 1.2 to 116 GHz. The ngVLA consists of three arrays: the Main Array (214×18 -m antennas with baselines up to 1000 km), the Short Baseline Array (19×6 -m antennas and 4×18 -m single dish), and the Long Baseline Array (30×18 -m antennas with the longest baseline of 8860 km). The ngVLA will achieve $10\times$ higher sensitivity and $> 10\times$ higher resolution than the current VLA and ALMA, which will revolutionize our understandings on various aspects of the universe. In this talk, we will first report recent progresses of the international ngVLA community, including (1) successful pass of the NSF Conceptual Design Review in US, (2) antenna site investigation in Mexico, (3) proposal of German VLBI function, (4) Science/Technical Advisory Councils (SAC/TAC) reports, and (5) scientific + technical advancements in Japan. In particular, we will report the construction of a prototype antenna that is already happening in US, and explain how the construction plan and timeline (recently updated in the ngVLA study group) in Japan align well with the US's prospect, with a particular emphasis on the importance of Long Baseline Array. Lastly, a summary of a series of Science Working Group (SWG) workshops will be given: we will explain our plan to publish a Japanese science white book based on these community's efforts.