Next Generation Very Large Array

Graphics Guidelines

Logo: Color

Blue

PMS 7461

Process Colors
C=90
M=41
Y=6
K=0

RGB
R=61
G=112
B=165

Hexadecimal
#3d70a5

Grey

PMS 7539

Process Colors
C=46
M=38
Y=43
K=3

RGB
R=124
G=124
B=124

Hexadecimal
#7c7c7c

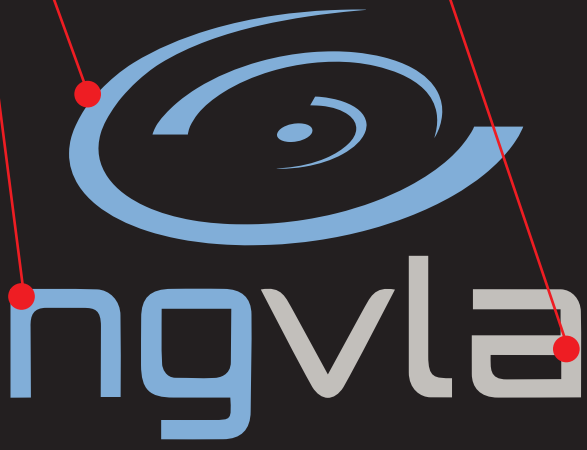
Logo: B+W / Reverse

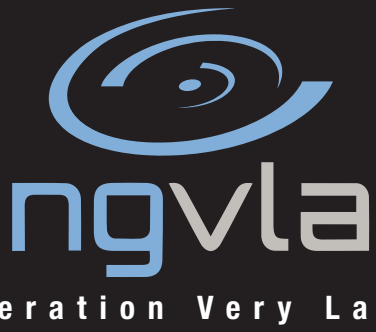
Logo: Color Reverse

White

50% of Blue

50% of Grey





Logo: Color Reverse on Blue

White

20% of Blue

White

Logo: Fonts

Primary Usage

Orbitron

Secondary Usage

Helvetica Condensed Bold
Justified

or

Helvetica Condensed Bold
Tracked

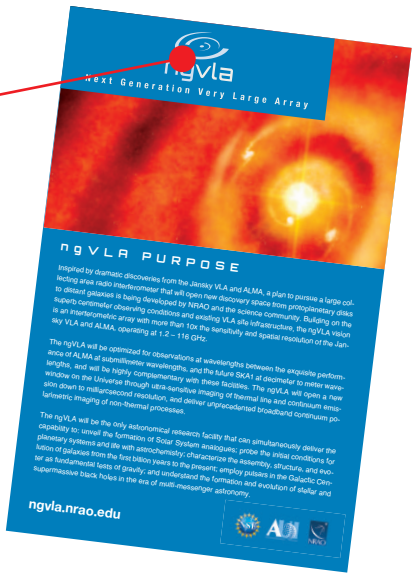
Secondary Usage

Logo: Placement

Stand Alone:
Above and Left of other Elements *or* Centered in Bar

Above and left

Centered in bar



Grouped:
In order of NSF, AUI, NRAO, ngVLA

Nomenclature

Please use this system of naming in ngVLA collateral materials

Web address:

ngvla.nrao.edu

Acronym:

ngVLA

Proper name, spelled out:

Next Generation Very Large Array

Applications: Overall Graphic Elements

Color Usage:

Primary color

Blue PMS 7461

Process Colors: C=90, M=41, Y=6, K=0 • RGB: R=61, G=112, B=165 • Hexadecimal: #3d70a5

Secondary accent colors

Purple C=27, M=27, Y=4, K=0 • RGB: R=173, G=165, B=194 • Hexadecimal: #ada5c2

Green C=29, M=6, Y=51, K=0 • RGB: R=176, G=195, B=142 • Hexadecimal: #b0c38e

Fonts:

Headlines

Orbitron

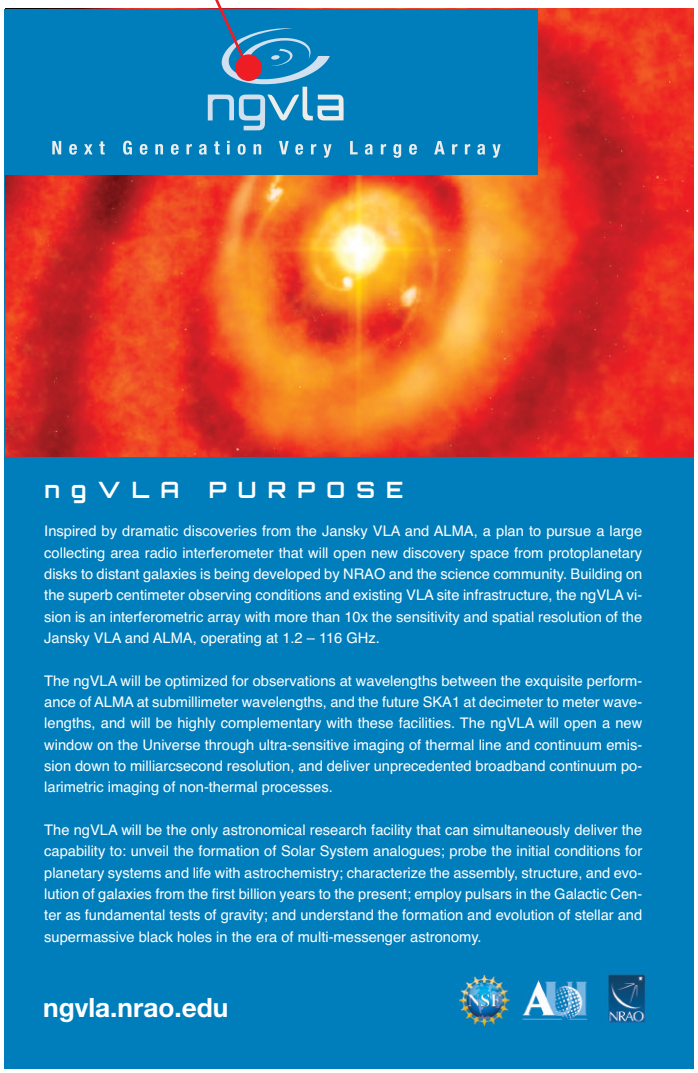
Headlines or Text

Helvetica

Applications: Posters

Logo above and left of other elements

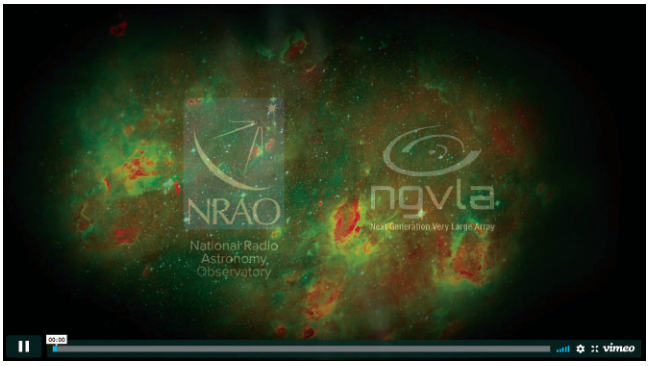
Logo centered in bar

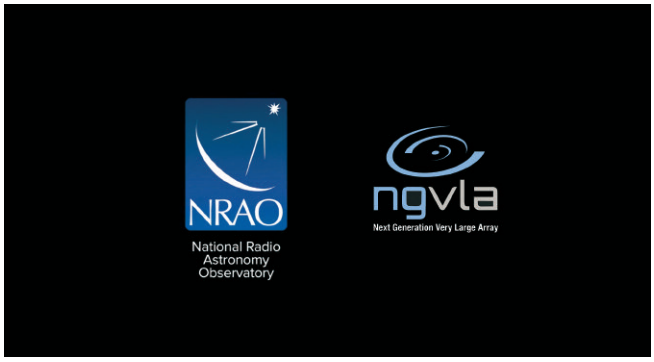


Applications: Exhibit Booth

Applications: Science Videos

Animation: Introduction





Animation: Conclusion

Applications: Brochure

Logo centered in bar

Orbitron

Helvetica

ngvla

Next Generation Very Large Array

A Next Generation Very Large Array would directly image the formation of Earth-like planets, trace the complex organic molecules in star-forming regions, probe the dense gas history of the Universe during the epoch of galaxy assembly, detect pulsars throughout our Galaxy, and more.

ngVLA PURPOSE

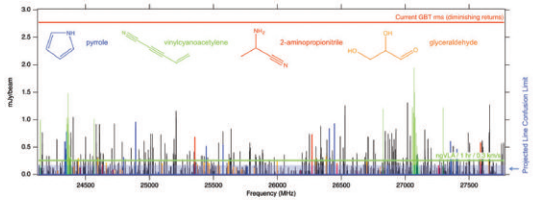
Inspired by dramatic discoveries from the Jansky VLA and ALMA, a plan to pursue a large collecting area radio interferometer that will open new discovery space from protoplanetary disks to distant galaxies is being developed by NRAO and the science community. Building on the superb centimeter observing conditions and existing VLA site infrastructure, the ngVLA vision is an interferometric array with more than 10x the sensitivity and spatial resolution of the Jansky VLA and ALMA, operating at 1.2 – 116 GHz.

The ngVLA will be optimized for observations at wavelengths between the exquisite performance of ALMA at submillimeter wavelengths, and the future SKA1 at decimeter to meter wavelengths, and will be highly complementary with these facilities. The ngVLA will open a new window on the Universe through ultra-sensitive imaging of thermal line and continuum emission down to milliarcsecond resolution, and deliver unprecedented broadband continuum polarimetric imaging of non-thermal processes.

The ngVLA will be the only astronomical research facility that can simultaneously deliver the capability to: unveil the formation of Solar System analogues; probe the initial conditions for planetary systems and life with astrochemistry; characterize the assembly, structure, and evolution of galaxies from the first billion years to the present; employ pulsars in the Galactic Center as fundamental tests of gravity; and understand the formation and evolution of stellar and supermassive black holes in the era of multi-messenger astronomy.

Key Science Goal 2 – Probing the Initial Conditions for Planetary Systems and Life with Astrochemistry

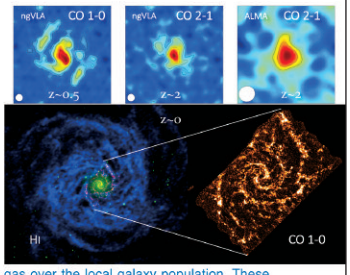
The ngVLA will detect predicted, but as yet unobserved, complex prebiotic species that are the basis of our understanding of chemical evolution toward amino acids and other biogenic molecules. The ngVLA will enable the detection and study of chiral molecules, testing ideas on the origins of homochirality in biological systems. The detection of such complex organic molecules will provide the chemical initial conditions of forming solar systems and planets.



A conservative simulation of 30 as-yet-undetected complex interstellar molecules (black) likely to be observed by the ngVLA above the confusion limit around hot cores with typical sizes of ~1" – 4". Key molecules are highlighted in color.

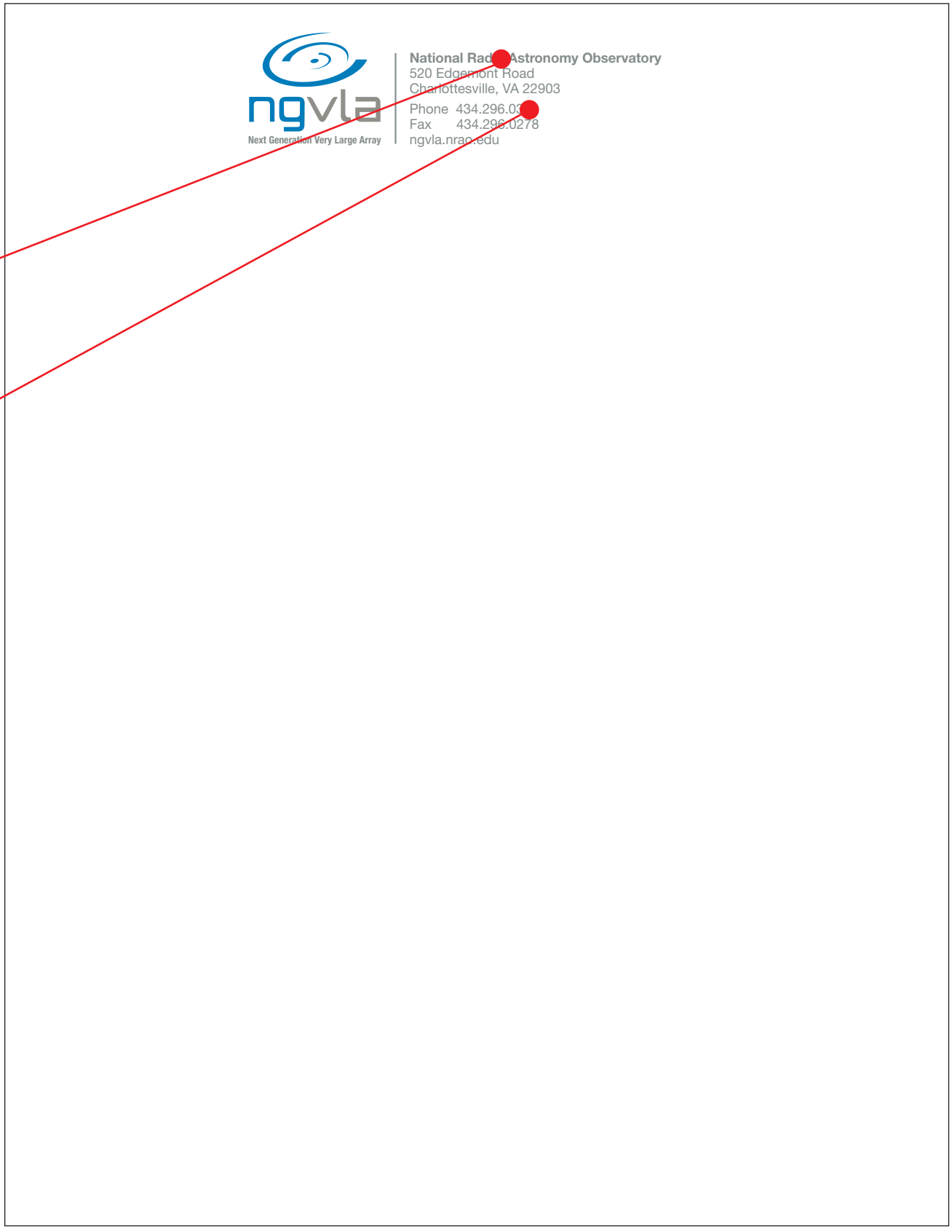
Key Science Goal 3 – Charting the Assembly, Structure, and Evolution of Galaxies from the First Billion Years to the Present

The ngVLA will provide a 10x improvement in depth and area for cold gas surveys in galaxies to early cosmic epochs, and will enable routine sub-kiloparsec scale resolution imaging of the gas reservoirs. The ngVLA will afford a unique view into how galaxies accrete and expel gas and how this gas is transformed inside galaxies by imaging their extended atomic reservoirs and circum-galactic regions, and by surveying the physical and chemical properties of molecular gas over the local galaxy population. These studies will reveal the detailed physical conditions for galaxy assembly and evolution throughout the history of the Universe.



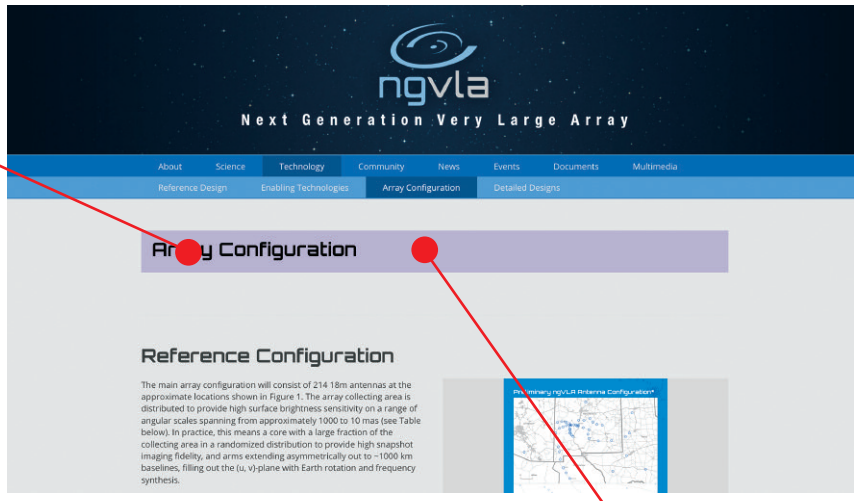
(Top Panels) Simulations based on M51 with molecular mass scaled by 1.4x (z = 0.5) and 3.5x (z = 2) to match the lowest molecular mass galaxies observable by ALMA and the Northern Extended Millimeter Array (ngVLA Memo #13). Integration times are 30 hours.(Bottom Panels) The spiral galaxy M74 illustrating the CO molecular disk imaged by ALMA (red; Schinnerer in prep.), the stellar disk at 4.5μm imaged by Spitzer (green; Kennicutt et al. 2003), and the atomic disk imaged in HI by the VLA (blue; Walter et al. 2008), showing the gas phases to which the ngVLA will be sensitive. [Right Panel] The CO J = 2 → 1 map at 1" resolution.

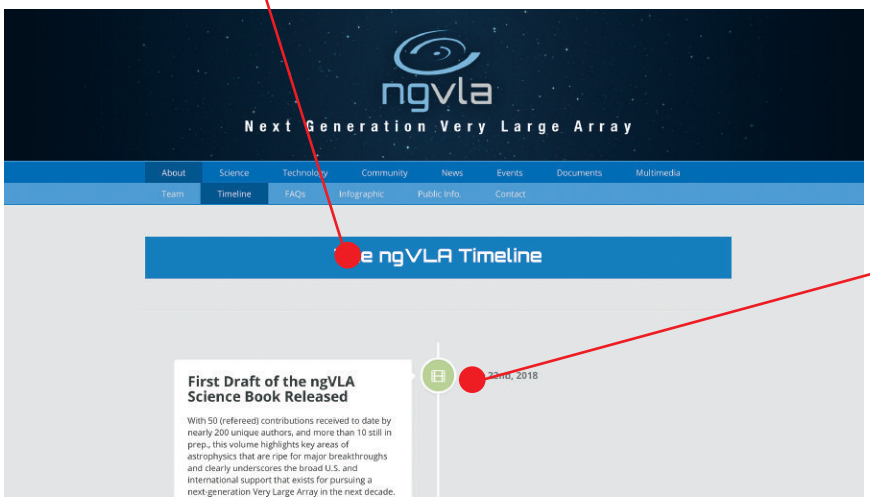
Applications: Stationery



Applications: Web/Internet

Orbitron





Secondary accent colors purple and green