

# *Galaxy Diversity in a Herd*



*Image Credit: Gemini Observatory/AURA*

*Gemini Observatory Legacy Image*



The Gemini Observatory is operated by the Association of Universities for Research in Astronomy, Inc., under a cooperative agreement with the National Science Foundation on behalf of the Gemini Partnership.



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## *Galaxy Diversity in a Herd*

This compelling image from the Gemini North telescope peers into the heart of W 166, a galaxy group 300 million light years distant. It presents, at a glance, a sampling of the wide diversity of systems that populate the deep reaches of the nearby Universe.

One of its most fascinating features is a striking alignment of three disparate galaxies in a near equilateral triangle: Spiral-shaped NGC 70 at top, elliptical galaxy NGC 68 to its lower right, and lenticular galaxy NGC 71 to its lower left. NGC 70's spiral arms are dominated by extensive areas of active star formation which appear blue in this image due to the colors used to assemble this color composite. NGC 68 looks monochromatic because it's a much older system devoid of star formation and spiral structure. NGC 71 is a lenticular galaxy with attributes of both spiral and elliptical systems.

NGC 70's spiral arms also appear distorted between NGC 68 and NGC 71, indicating a possible tidal dance with one or more of the group's galaxies. These graceful interactions are choreographed as W 166's members whiz collectively through space at about 6,500 kilometers per second.

Barred spiral galaxy NGC 72 lies to the triangle's lower left. Our own Milky Way galaxy has a similar bar-like structure, but its arms are of a "grand design"— more splendid, organized, and numerous.

## Gemini Observatory Facts

### PRIMARY MIRRORS:

Diameter: 8.1 meters; 26.57 feet; 318.84 inches

Mass: 22.22 metric tonnes; 24.5 U.S. tons

Composition: Corning Ultra-Low Expansion (ULE) Glass

Surface Accuracy: 15.6 nm RMS (between 1/1000 - 1/10,000 thickness of human hair)

### TELESCOPE STRUCTURES:

Height: 21.7 meters; 71.2 feet; 7 stories (from "Observing Floor")

Weight: 380 metric tonnes; 419 U.S. tons

Optomechanical Design: Cassegrain; Alt-azimuth

### DOMES:

Height: 46 meters; 151 feet; 15 stories (from ground)

Weight: 780 metric tonnes; 860 U.S. tons (moving mass)

Rotation: 360 degrees in 2 minutes

Thermal Vents: 10 meters; 32.8 feet (width – fully open)

### GEOGRAPHICAL DATA:

Elevation: Gemini North: 4,214 meters; 13,824 feet / Gemini South: 2,737 meters; 8,980 feet

Location: Gemini North: 19°49.4'N; 155°28.1'W / Gemini South: 30°14.5'S; 70°44.8'W

To see this, and many other images, please visit: <http://www.gemini.edu/legacyph>