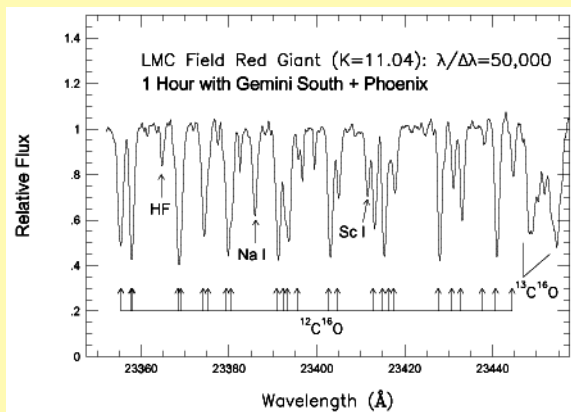


Phoenix is a high-resolution infrared spectrograph developed and maintained by the National Optical Astronomy Observatory.

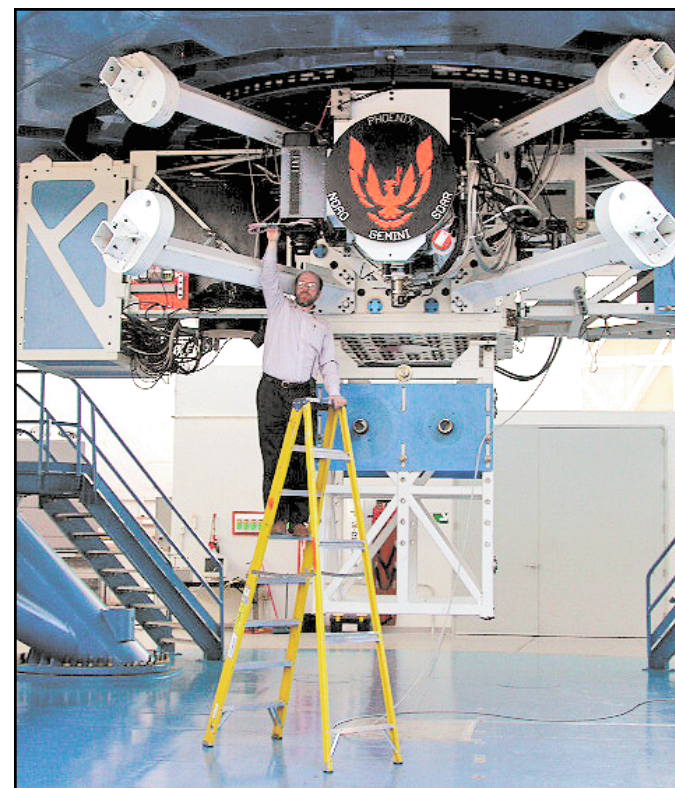
Phoenix is available on Gemini South in both queue and classically scheduled mode.

PHOENIX

Near-IR High-Resolution Spectrograph



Sample Phoenix spectrum of a K=11 mag field red giant in the Large Magellanic Cloud. This spectrum results from the combination of three 20-minute integrations with the 4-pixel (0.35 arcsec) slit. (Smith et. al, 2002, AJ, 124, 3241)



Phoenix mounted on a side-looking port of Gemini South

Offered at **Gemini South**

NOAO Staff Contact for PHOENIX:

Katia Cunha – kcunha@noao.edu

Ken Hinkle – hinkle@noao.edu

For further details visit the Phoenix Web page at

<http://www.noao.edu/usgp/phoenix/>

<http://www.gemini.edu/sciops/instruments/phoenix>



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Phoenix is a near-infrared (1-5 micron) high-resolution spectrograph with an InSb 1024×1024 detector. The resolution of 50000 to 75000 is suitable for projects investigating velocity-resolved spectroscopy of cool stars, circumstellar shells, and the interstellar medium. Over the range 1 - 2.5 microns Phoenix is source photon or detector noise limited. Background noise plays an increasingly important role at longer wavelengths. An exposure time calculator can be found on the NOAO Phoenix Web site (www.noao.edu/gateway/spectime/gemphx.html).

Telescopes:	Gemini South
Wavelength range:	1 to 5 microns
Wavelength coverage:	~ 0.5 percent = 1500 km s^{-1}
Limiting magnitude:	K ~ 14 at S/N ~ 10 in 1 hour
Slit width:	2 pixel = 0.17 arcseconds Typically used with 4 pixel (0.34") slit
Slit length:	15 arcseconds on Gemini
Resolution:	50000 (4 pixel slit) to 75000 (2 pixel slit)
Blaze angle/grating:	63.4° , 31 grooves per mm echelle
Order separation:	Order Sorting Filters
Cross dispersed:	No
Scattered light:	~ 1 percent in cores of opaque telluric lines

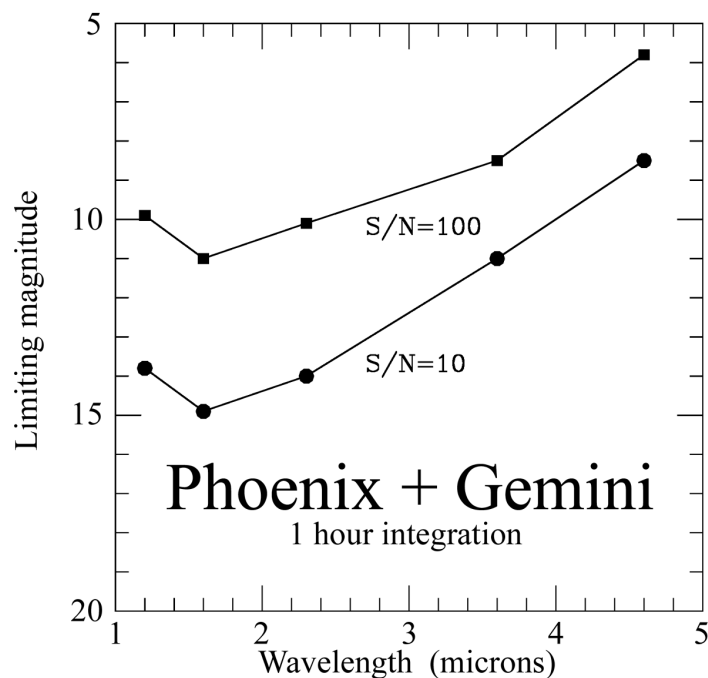
Array format:	1024 x 256 with 27 micron pixels
Electrons per ADU:	$9.0 e^-$
Dark current:	$0.15 e^-/\text{second}$
Read noise:	$36 e^-$
Well Depth:	8500 ADU

Computer control: Wildfire

Data format: FITS images

Acquisition: IR imaging mode

Guiding: Telescope guide probes; Phoenix dichroic also sends on-axis field to CCD.



Approximate limiting magnitudes in good conditions as a function of wavelength.