

Wideband Photometry of Uranus: 1991-2013

Richard W. Schmude, Jr.
Gordon State College

Objectives

- Monitor brightness and color change
 - With season
 - With solar phase angle

Wavelengths: 450 to 1000 nm

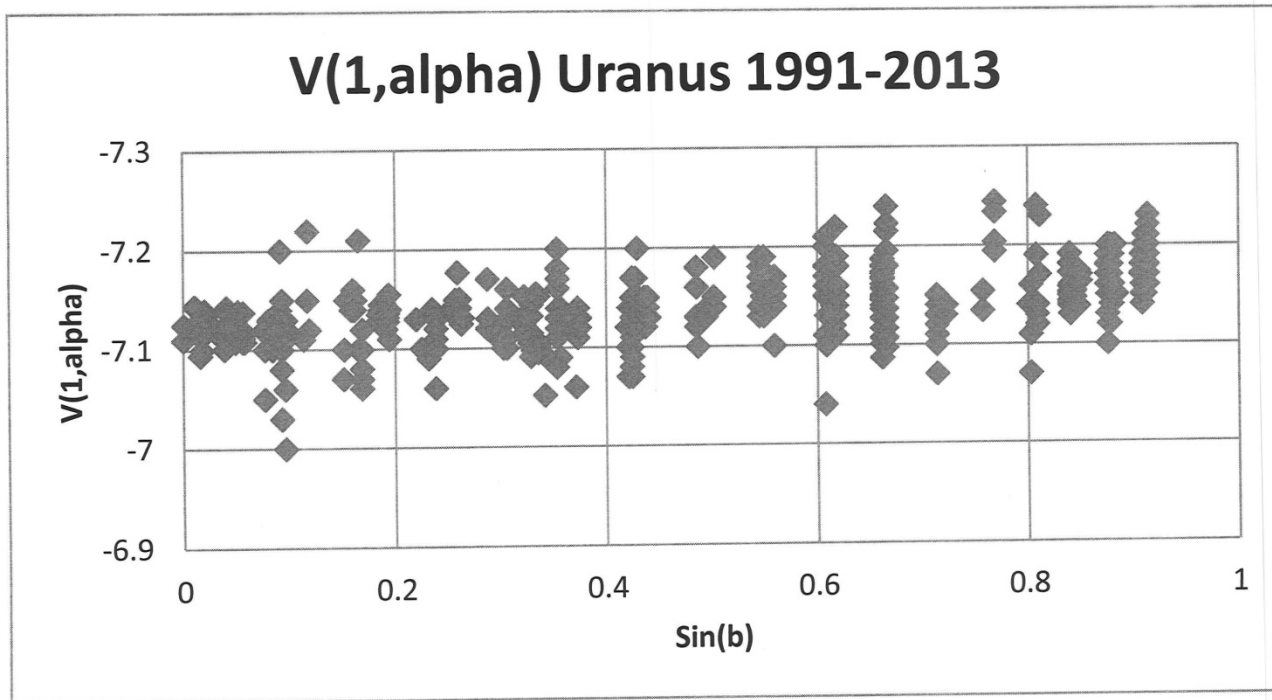
Variables

- Solar phase angle 0.0 to 3.0
- Sub Earth/Sun latitude, b
- How does normalized magnitude, $V(1,\alpha)$ change with:
 - b
 - b and α
 - Quadratic involving b ?

Results: V filter

Variable	Standard Error (stellar magnitudes)
b	0.026
B and a	0.026
Quadratic involving b	0.026

Results: V filter



Results: Color indexes

Color Index	$\sin(b) = 0$	$\sin(b) = 1.0$
B-V	0.51	0.52
V-R	0.12	0.45
V-I	1.57	1.42

Conclusions

- Uranus is 0.057 magnitudes brighter at solstice than at equinox
- Uranus is redder at solstice than at equinox
- Normalized magnitude follows:
$$V(1,\alpha) = -7.113 - 0.057\text{Sin}(b)$$

b = sub Earth/Sun latitude