

PROFESSOR COMET REPORT

APRIL/MAY 2011

Current status of the predominant comets for 2011

Comets	Designation (IAU-MPC)	Orbital Status	Magnitude (Visual)	Trend	Observation (Lat.)	Constellations (Night Sky Location)	Visibility Period
McNaught	2011 C1	C	8.5	Bright	50°N - 60°S	Pegasus/Aquarius	Early Morning
Garradd	2009 P1	C	10.5	Bright	20°N - 75°S	Aquarius	Best Morning
Schwassman Wachmann 1	29P	P	~13	Varies	60°N - 60°S	Leo/Sextans	Best Evening
249P/Linear	2011 A4	P	~13	Fading	Poor Elongation	Pisces	N/A
Catalina	2009 Y1	C	14	Fading	Poor Elongation	Pegasus	N/A
Scheila	(596)	P	14	Fading	65°N - 25°S	Lynx/Leo	Best Evening
Elenin	2010 X1	C	15	Bright	60°N - 55°S	Leo	Best Evening

The **red designation** is assigned to all comets that are of 10th visual magnitude or brighter and are classified as the **major comets**. All remaining comets that are possibility at 12th visual magnitude or fainter are given the **blue designation** and are classified as the minor comets! The **green designation** is assigned to comets to far south to be seen in the continental United States: **only for comets brighter than 11th magnitude**. The **orange designation** is for comets that are lost in the daytime glare or have poor elongation!

Ephemeris data terminology:

Date: Month and Year using the standard Gregorian calendar.

TT: Terrestrial Time (Day of the Month) as a substitute for the astronomical Julian date.

RA (2000): Right Ascension based on the Epoch J2000 (longitudinal coordinate for the celestial sky) measured in hours and minutes.

Decl.: Declination as measured in degrees and arcminutes.

Delta: The distance from Earth measured in AUs (1 AU = 1 Astronomical Unit = 92 955 807 mi = 149 597 871 km as the mean distance between the Earth and Sun).

R: The solar distance as measured in AUs.

Elong: Solar elongation which is the angle of separation between the observed object and the Sun as measured across the night sky as measured in degrees.

Phase: Phase angle between the Sun, the celestial object, and the observer on the surface of the Earth. Also known as the Sun - Object - Observer angle.

M1: The visual magnitude of the celestial object as observed on the surface of the Earth at sea level. *(Note M1 values predicted by the Minor Planet Center can differ from actual visual reports obtain in the field!)*

M2: The nuclear magnitude of the Comet which is also the visual magnitude of the false nucleus.

"/min: The progression or motion across the sky as measured in arcseconds per minute.

P.A. : Position angle while undergoing motion in the celestial sky.

Degree of Condensation (DC)

All observations of comets are broken down into three factors: estimating magnitudes for light curves to predict future brightness, coma observations, and observations that concern with a comet's tail(s). For the coma there two characteristic features that are important when studying the coma: Degree of condensation and coma size in arcminutes. The classification system for determining the DC is based on a positive integer system from 0 to 9 as shown below.

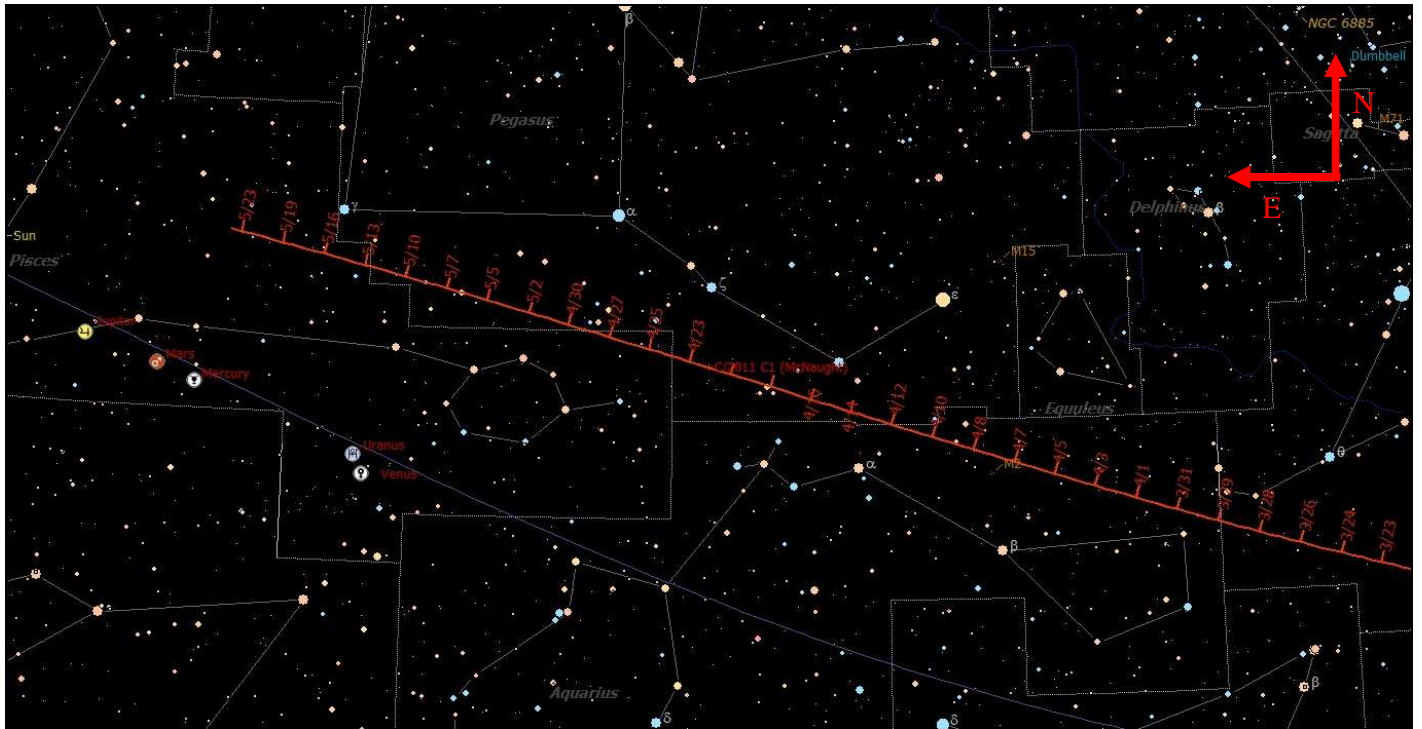
- 0 = Diffuse coma of uniform brightness*
- 1 = Diffuse coma with slight brightening towards center*
- 2 = Diffuse coma with definite brightening towards center*
- 3 = Centre of coma much brighter than edges, though still diffuse*
- 4 = Diffuse condensation at centre of coma*
- 5 = Condensation appears as a diffuse spot at centre of coma – described as moderately condensed.*
- 6 = Condensation appears as a bright diffuse spot at centre of coma*
- 7 = Condensation appears like a star that cannot be focused – described as strongly condensed*
- 8 = Coma virtually invisible*
- 9 = Stellar or disk like in appearance.*

A Synopsis of the Predominant Comets for Spring 2011

The surprising comet discovery for 2011 so far has been the discovery of another McNaught comet 2011 C1 which currently resides within the region between the constellations of Pegasus and Aquarius. This makes the comet visible in the early morning sky a few hours before sunrise as the constellations of the late summer season start to make their debut appearance in the night sky. 2011 C1 is the latest discovery of the famous comet hunter & Scottish - Australian Astronomer Robert McNaught. The comet was first seen by Dr. McNaught on the evening of 5 April 2011 in the Siding Spring survey done in Australia. This makes it the 27th long period comet discovered by Dr. McNaught; his latest discovery was the 17.5 magnitude C/2011 G1 discovered the following night of 6 April. Comet McNaught 2011 C1 is currently in the brightening stage with the latest visual magnitude reported at 8.6! Latest visual observation reports place the size of the coma at about 4 arcminutes across with a DC of 3 which makes a very diffuse coma, but with a fainter, outer rim. No reports of a tail from visual observations have been reported or confirmed nor have any been detected by astroimaging to the present date.

The other prospects for brighter comets will not take place until the late autumn/early winter season of 2011 and into the early months of 2012! 2009 C1 Garrad is now visible in the not-so-early morning sky in the early dawn period before sunrise, but it is far too south and too low to be seen from the US. All of the other major that have made shows in the previous years are now fainter than 11th or 12th magnitude and do not show any signs of the brightening up or having an unexpected outburst. Any further information can be read about in the previous synopsis found in the March/April 2011 report!

Figure 2: McNaught C1 projected path 20 April - 20 May!



Note: Courtesy of Skytools 3 Professional 2011

Note the proximity of the Sun in this Atlas image. The Sun is located presently in the eastern region of Pisces. As it moves further east the comet will be chasing towards the Sun in the early morning hours of each proceeding day thru the spring season! Comet McNaught C1 will be moving in almost a parallel path with the plane of the elliptic as it passes by the following planets in order: Venus, Uranus, Mercury, Mars, and finally Jupiter.

IAU MPC Ephemeris data for C/2011 McNaught C1 (April/May 2011):

Date	UT			R.A. (J2000)	Decl.	Delta	r	El.	Ph.	M1	*M2	Sky Motion	
	h	m	s									"/min	P.A.
2011 04 20	000000	22 32 04.7	+05 08 57	1.1088	0.8842	49.2	59.3	15.2	3.04	072.4			
2011 04 21	000000	22 36 42.6	+05 30 45	1.1193	0.8851	48.9	58.8	15.2	3.00	072.6			
2011 04 22	000000	22 41 17.0	+05 52 05	1.1298	0.8864	48.6	58.3	15.2	2.96	072.7			
2011 04 23	000000	22 45 47.8	+06 12 56	1.1404	0.8881	48.4	57.8	15.3	2.92	072.9			
2011 04 24	000000	22 50 15.2	+06 33 20	1.1511	0.8902	48.2	57.3	15.3	2.87	073.0			
2011 04 25	000000	22 54 39.1	+06 53 15	1.1618	0.8926	48.0	56.8	15.3	2.83	073.2			
2011 04 26	000000	22 58 59.6	+07 12 43	1.1726	0.8954	47.8	56.3	15.4	2.79	073.3			
2011 04 27	000000	23 03 16.8	+07 31 44	1.1835	0.8985	47.6	55.8	15.4	2.75	073.5			
2011 04 28	000000	23 07 30.6	+07 50 18	1.1943	0.9020	47.4	55.3	15.4	2.71	073.6			
2011 04 29	000000	23 11 41.2	+08 08 25	1.2052	0.9059	47.3	54.8	15.5	2.67	073.8			
2011 04 30	000000	23 15 48.6	+08 26 06	1.2162	0.9101	47.2	54.3	15.5	2.63	074.0			
2011 05 01	000000	23 19 52.7	+08 43 22	1.2271	0.9146	47.1	53.7	15.6	2.60	074.1			
2011 05 02	000000	23 23 53.7	+09 00 12	1.2380	0.9194	47.0	53.2	15.6	2.56	074.3			
2011 05 03	000000	23 27 51.6	+09 16 38	1.2489	0.9246	46.9	52.7	15.6	2.52	074.5			
2011 05 04	000000	23 31 46.4	+09 32 39	1.2598	0.9301	46.8	52.2	15.7	2.49	074.6			
2011 05 05	000000	23 35 38.1	+09 48 16	1.2706	0.9359	46.8	51.7	15.7	2.45	074.8			
2011 05 06	000000	23 39 26.8	+10 03 30	1.2814	0.9420	46.7	51.2	15.8	2.41	075.0			
2011 05 07	000000	23 43 12.6	+10 18 20	1.2922	0.9484	46.7	50.7	15.8	2.38	075.1			
2011 05 08	000000	23 46 55.4	+10 32 47	1.3029	0.9551	46.7	50.3	15.9	2.34	075.3			
2011 05 09	000000	23 50 35.3	+10 46 52	1.3135	0.9620	46.7	49.8	15.9	2.31	075.5			
2011 05 10	000000	23 54 12.3	+11 00 35	1.3241	0.9692	46.7	49.3	16.0	2.28	075.6			
2011 05 11	000000	23 57 46.5	+11 13 57	1.3346	0.9767	46.7	48.9	16.0	2.24	075.8			
2011 05 12	000000	00 01 17.9	+11 26 57	1.3451	0.9844	46.8	48.4	16.1	2.21	076.0			
2011 05 13	000000	00 04 46.5	+11 39 37	1.3555	0.9924	46.8	48.0	16.1	2.18	076.2			
2011 05 14	000000	00 08 12.4	+11 51 56	1.3657	1.0006	46.9	47.5	16.2	2.15	076.3			
2011 05 15	000000	00 11 35.6	+12 03 56	1.3759	1.0090	47.0	47.1	16.2	2.11	076.5			
2011 05 16	000000	00 14 56.1	+12 15 36	1.3860	1.0176	47.1	46.7	16.3	2.08	076.7			
2011 05 17	000000	00 18 14.0	+12 26 56	1.3960	1.0265	47.2	46.3	16.3	2.05	076.9			
2011 05 18	000000	00 21 29.3	+12 37 58	1.4059	1.0355	47.3	45.9	16.4	2.02	077.1			
2011 05 19	000000	00 24 42.0	+12 48 42	1.4157	1.0448	47.5	45.5	16.4	1.99	077.2			
2011 05 20	000000	00 27 52.2	+12 59 08	1.4254	1.0542	47.6	45.2	16.5	1.96	077.4			

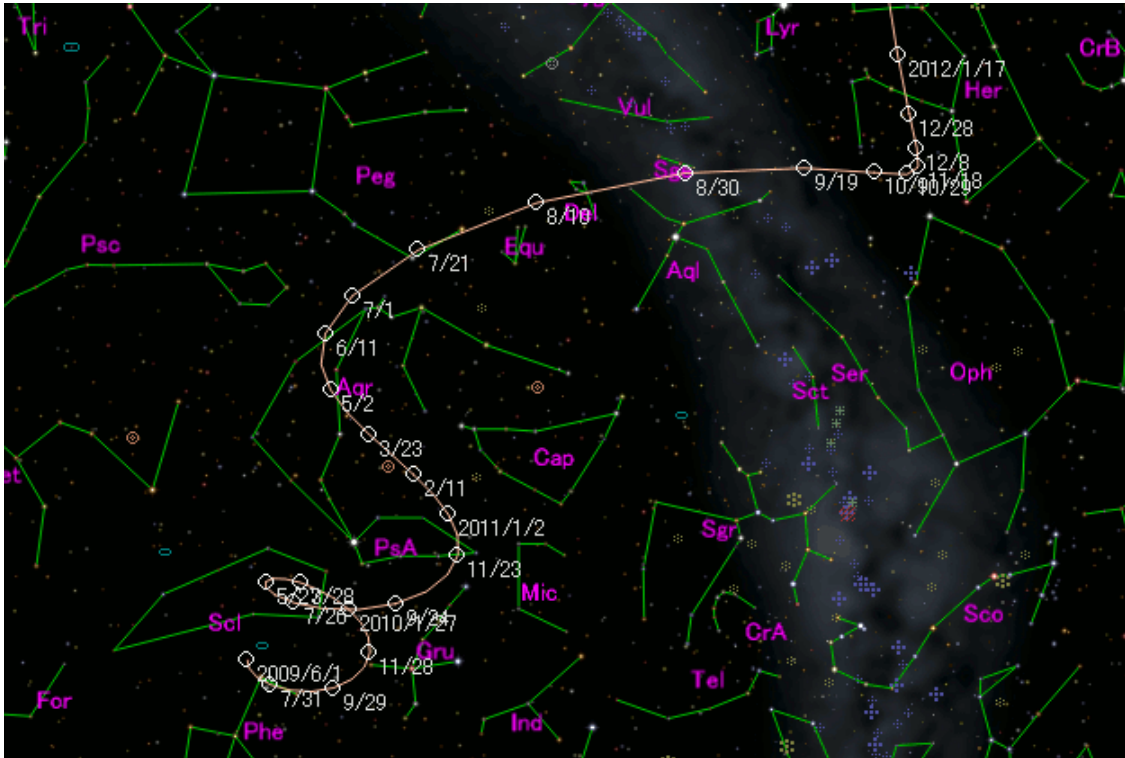
All ephemeris data above is calculated for the SE Texas region at 00:00 CST which is -6 hrs behind UTC?

*M2 values are not shown if values are fainter than 19th magnitude!

The ephemeris data for 2011 McNaught C1 shows the predicted visual magnitude values (M1) are not correlating with actual values measured by recent field observation reports. Remember that IAU MPC data on cometary bodies when it comes to prediction of magnitude values both for visual (M1) and nuclear magnitude (brightness of the false nucleus: M2) are only estimations based on previously gathered data.

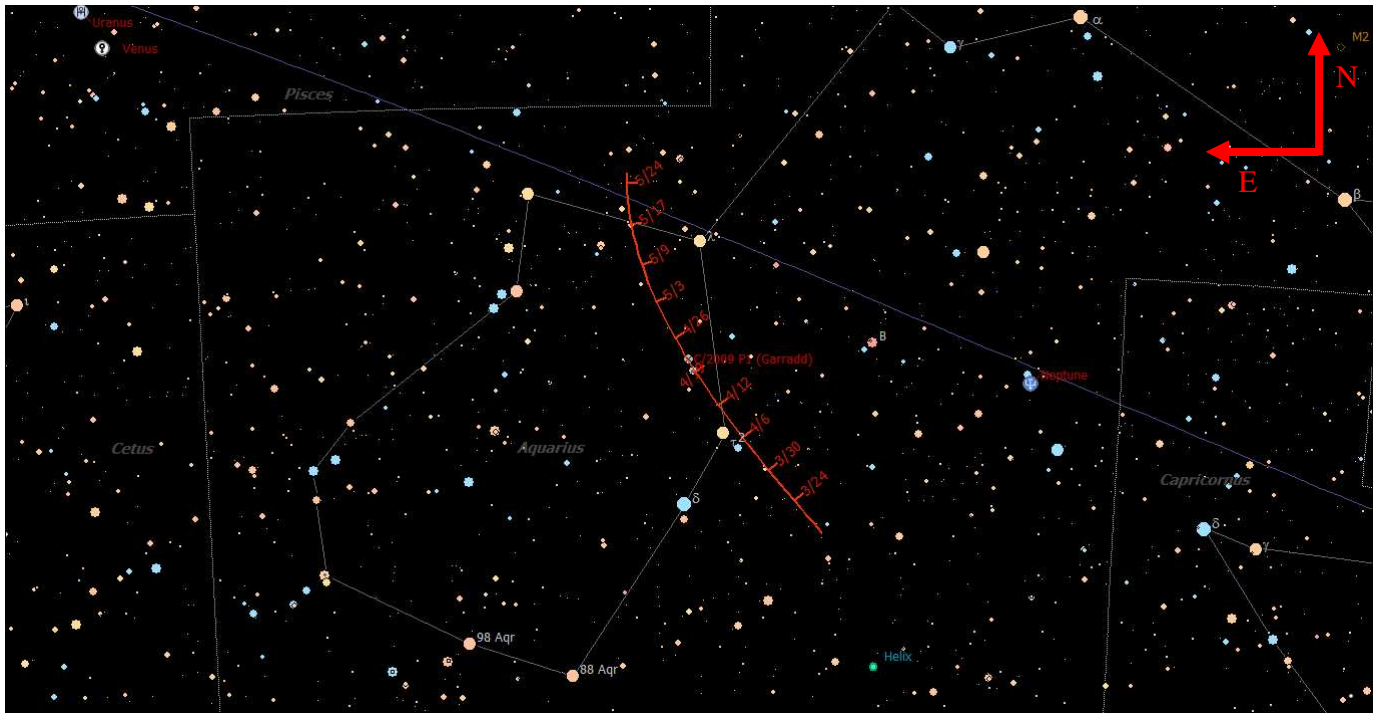
C/2009 P1 Garradd

Figure 3: Garradd P1 projected path through the summer sky!



Courtesy of www.aerith.net: Seiichi Yoshida's Comet Page!

Figure 4: Garradd P1 projected path 20 April - 20 May!



Note: Courtesy of Skytools 3 Professional 2011

Note that Garradd P1 is moving in a NNE direction thru eastern region of Aquarius. See where the positions of Neptune and the Helix Nebula are located with respect to the path of the comet as it heads north towards Pisces western region. The comet is expected to cross the boundary between Pisces and Aquarius by the beginning of May 2011!

IAU MPC Ephemeris data for C/2009 P1 Garradd (April/May 2011):

Date	UT	R.A. (J2000)	Decl.	Delta	r	El.	Ph.	M1	*M2**Sky	Motion
	h m s								"/min	P.A.
2011 04 20	000000	22 53 18.6	-11 37 43	4.0230	3.4541	49.4	12.7	12.4	0.48	032.9
2011 04 21	000000	22 53 43.7	-11 28 08	4.0003	3.4444	50.2	12.9	12.4	0.47	032.4
2011 04 22	000000	22 54 08.3	-11 18 31	3.9773	3.4346	51.0	13.1	12.4	0.47	031.9
2011 04 23	000000	22 54 32.5	-11 08 52	3.9542	3.4249	51.8	13.3	12.3	0.47	031.3
2011 04 24	000000	22 54 56.3	-10 59 11	3.9309	3.4152	52.6	13.5	12.3	0.47	030.8
2011 04 25	000000	22 55 19.6	-10 49 29	3.9075	3.4054	53.4	13.7	12.3	0.47	030.2
2011 04 26	000000	22 55 42.4	-10 39 44	3.8839	3.3957	54.2	13.9	12.3	0.47	029.6
2011 04 27	000000	22 56 04.6	-10 29 57	3.8602	3.3860	55.1	14.1	12.2	0.47	028.9
2011 04 28	000000	22 56 26.4	-10 20 08	3.8363	3.3762	55.9	14.3	12.2	0.47	028.3
2011 04 29	000000	22 56 47.7	-10 10 17	3.8122	3.3665	56.7	14.5	12.2	0.46	027.6
2011 04 30	000000	22 57 08.4	-10 00 24	3.7880	3.3567	57.5	14.7	12.2	0.46	026.9
2011 05 01	000000	22 57 28.5	-09 50 29	3.7637	3.3470	58.4	14.8	12.1	0.46	026.2
2011 05 02	000000	22 57 48.0	-09 40 31	3.7392	3.3372	59.2	15.0	12.1	0.46	025.4
2011 05 03	000000	22 58 07.0	-09 30 31	3.7146	3.3275	60.0	15.2	12.1	0.46	024.6
2011 05 04	000000	22 58 25.3	-09 20 28	3.6898	3.3177	60.9	15.4	12.0	0.46	023.8
2011 05 05	000000	22 58 43.0	-09 10 23	3.6649	3.3080	61.7	15.6	12.0	0.46	023.0
2011 05 06	000000	22 59 00.1	-09 00 15	3.6399	3.2982	62.5	15.7	12.0	0.46	022.1
2011 05 07	000000	22 59 16.5	-08 50 05	3.6148	3.2884	63.4	15.9	12.0	0.46	021.2
2011 05 08	000000	22 59 32.2	-08 39 51	3.5895	3.2787	64.2	16.1	11.9	0.46	020.3
2011 05 09	000000	22 59 47.2	-08 29 35	3.5641	3.2689	65.0	16.3	11.9	0.45	019.4
2011 05 10	000000	23 00 01.4	-08 19 16	3.5387	3.2591	65.9	16.4	11.9	0.45	018.4
2011 05 11	000000	23 00 15.0	-08 08 54	3.5131	3.2494	66.7	16.6	11.8	0.45	017.4
2011 05 12	000000	23 00 27.7	-07 58 29	3.4874	3.2396	67.6	16.8	11.8	0.45	016.4
2011 05 13	000000	23 00 39.7	-07 48 01	3.4616	3.2298	68.4	16.9	11.8	0.45	015.3
2011 05 14	000000	23 00 50.9	-07 37 29	3.4357	3.2201	69.3	17.1	11.8	0.45	014.2
2011 05 15	000000	23 01 01.3	-07 26 54	3.4097	3.2103	70.1	17.2	11.7	0.45	013.1
2011 05 16	000000	23 01 10.8	-07 16 16	3.3836	3.2005	71.0	17.4	11.7	0.45	011.9
2011 05 17	000000	23 01 19.5	-07 05 33	3.3575	3.1908	71.9	17.5	11.7	0.46	010.8
2011 05 18	000000	23 01 27.3	-06 54 47	3.3312	3.1810	72.7	17.7	11.6	0.46	009.6
2011 05 19	000000	23 01 34.1	-06 43 58	3.3049	3.1712	73.6	17.8	11.6	0.46	008.3
2011 05 20	000000	23 01 40.1	-06 33 04	3.2785	3.1614	74.5	18.0	11.6	0.46	007.1

All ephemeris data above is calculated for the SE Texas region at 00:00 CST which is -6 hrs behind UTC?

*M2 values are not shown if values are fainter than 19th magnitude!