

(Other) Opportunities with Swift

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Long Duration GRBs: Mature

- GRBs as engines:
 - XRT light curves need digestion
 - Panchromatic studies are difficult
 - GRBs at low redshift are most interesting but rare
- GRBs as probes:
 - GRBs at high redshift (probe of IGM)
 - GRBs with large extinction
 - GRBs with bright afterglow (ISM)

BUT THESE NEED A GLOBAL & DETERMINED EFFORT

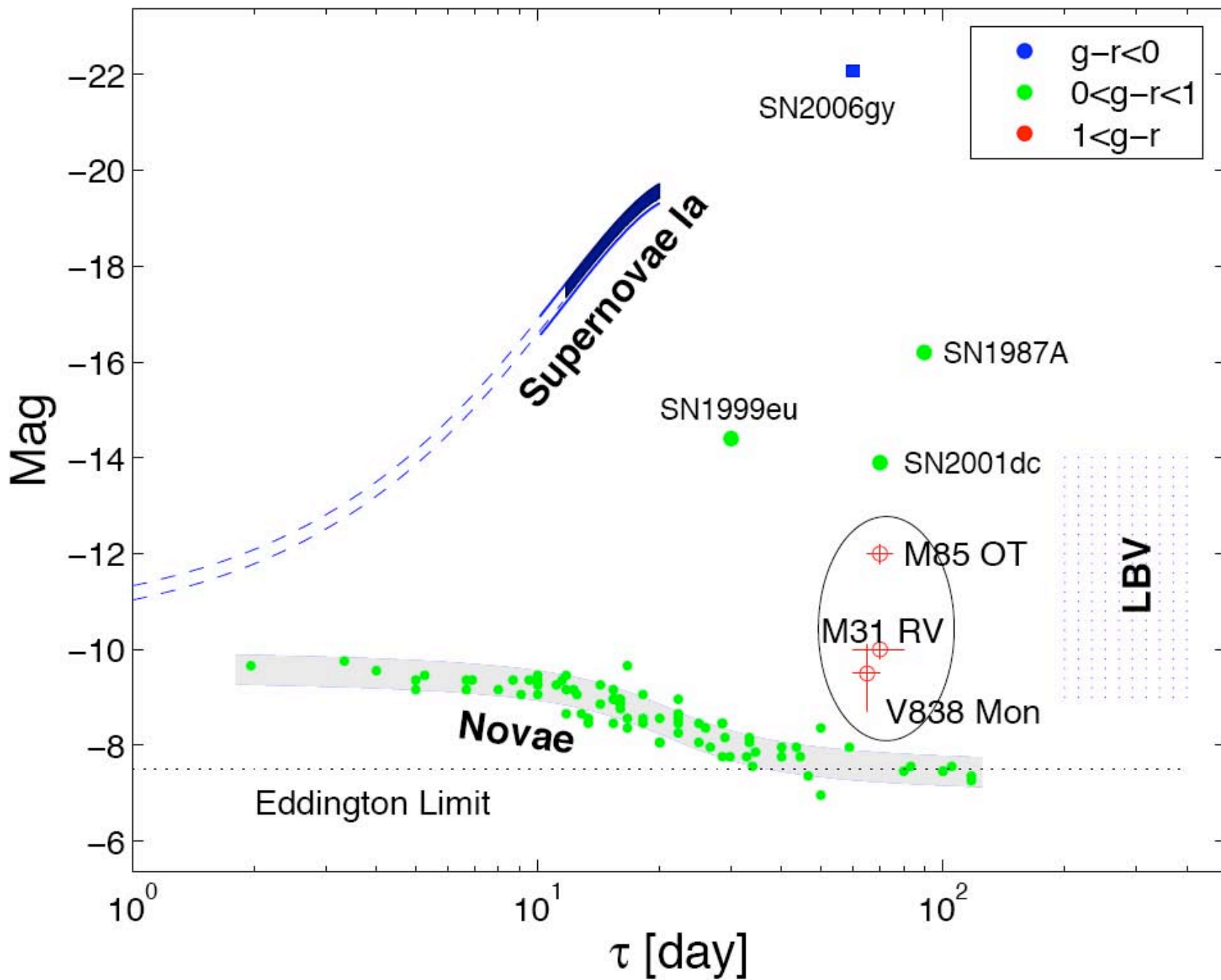
Short Duration GRBs: Frontier

- Relation to GW astronomy
 - LIGO is working very well
 - LIGO-2 is expected in 2013
- Origin remains mysterious
 - Statistics of host galaxies
 - Redshift distribution
- Coordination with Glast and Agile is essential

*CURRENT COURSE OF ACTION IS
REASONABLE*

Wide Field Optical Surveys: On the cusp

Observatory	Telescope	Size [m]	Imager	pixel scale ["/pxl]	outer dim. ["]	FoV [deg ²]	Read Time [s]	Etendue [m ² deg ²]	Filter
existing instrumentation									
Palomar	Oschin	1.26	QUEST	1	216×276	9.4	43	11.7	UBVRI
Subaru	Subaru	8.2	Suprime-Cam	0.20	34×27	0.25	60	8.8	BVRIGriz
CFHT	CFHT	3.6	MegaPrime	0.187	57×54	0.88	40	8.0	ugriz
Apache Point	SDSS	2.5	Photometric Cam.	0.396		1.5	drift scan	6.0	ugriz
Kitt Peak	Mayall	4	MOSAIC-1	0.26	36×36	0.35	154	4.4	UBVRIgriz
CTIO	Blanco	4	MOSAIC-2	0.26	36×36	0.35	154	4.4	UBVRIgriz
Steward	90-inch	2.28	90prime	0.45	69×69	1.00	100	4.1	UBVRI
AAO	AAT	3.9	WFI	0.23	31×31	0.27	50	3.2	UBVRIz
Palomar	Hale	5.1	LFC	0.18	25×25	0.13	115	2.7	BVRIGriz
ING	WHT	4.2	PFIP	0.24	16×16	0.07	~60	1.0	UBVRIZ
La Silla	2.2-m	2.2	WFI	0.238	33×34	0.30	27	0.9	UBVRIZ
Las Campanas	du Pont	2.5	WFCCD	0.774	25×25	0.17	67	0.8	BVRI
Kitt Peak	0.9-m	0.9	MOSAIC-1	0.43	59×59	0.95	154	0.6	UBVRIgriz
ANU	40-inch	1	WFI	0.38	52×52	0.75	50	0.6	UBVRIz
Calar Alto	3.5-m	3.5	LAICA	0.225	44×44	0.06	<100	0.6	UBVRIgriz
Las Campanas	Swope	1	Direct CCD Cam	0.44	15×23	0.10		0.1	UBVRI
future instrumentation									
LURE Observ.	PS1	1.8	PS1 (2006)			7	2	15	grizy
?	PanSTARRS	3.6	PanSTARRS (2010)			7	2	60	grizy
Cerro Pachon	LSST	8.4	LSST (2012)	0.19		9.6	2	319	ugrizY
Siding Spring	SkyMapper	1.35	SkyMapper (2007)	0.5	130×130	5.7	20	10.4	uvgriz
Paranal	VST	2.6	OmegaCam (2007)	0.21	60×60	~1	45	6.76	BVugriz
Paranal	VISTA	4.0	VISTA (2007)	0.34	90×66	<1	1	<16	ZYJHKs
Kitt Peak	WIYN	3.5	ODI (2009)	0.11	60×60	1	2	12.25	UBVRIZ



Radio Astronomy: Surge

- Mileuera Wide Field Array
- Low Frequency Array
- eVLA

New findings

- Magnetar hyperflares
 - in our Galaxy (26 December 2004)
 - Nearby Galaxies (M81, M31)
- Transient Anomalous X-ray Pulsars
- Giant flares from stars (II Peg)
- Sparkers (RRATs)
- Burpers (GCRT J1745-3009)
- Microquasars continue to be of interest and coordinated X-ray/radio/IR campaigns are still interesting

Conclusion

- Swift Observatory is uniquely positioned to observe non-thermal transients
- Allow for growth of TOO observations as new facilities come on line
- Challenge:
 - How to prioritize the requests?
 - How to determine the latency?