

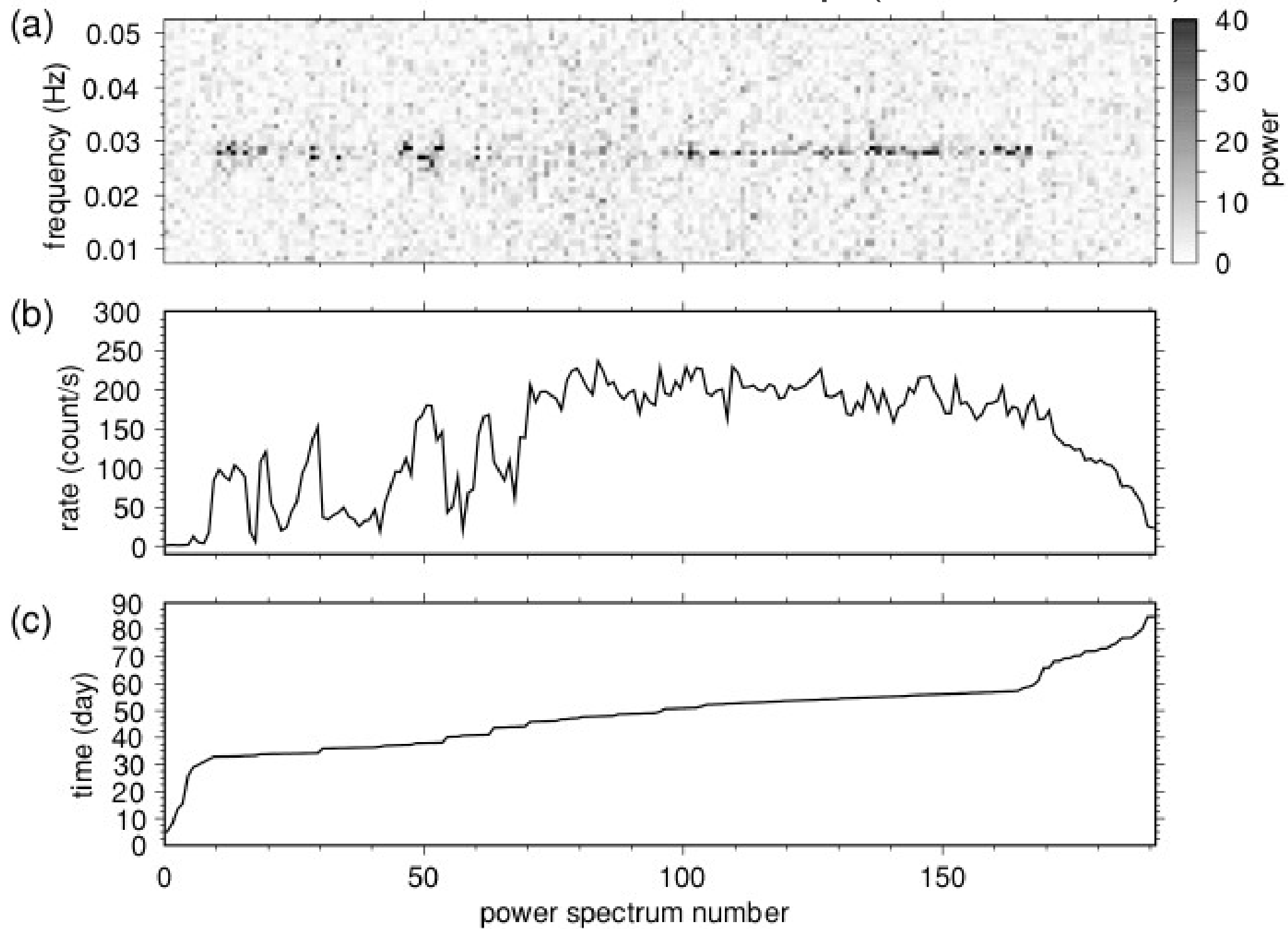
Transient short-period oscillations in Super Soft Sources

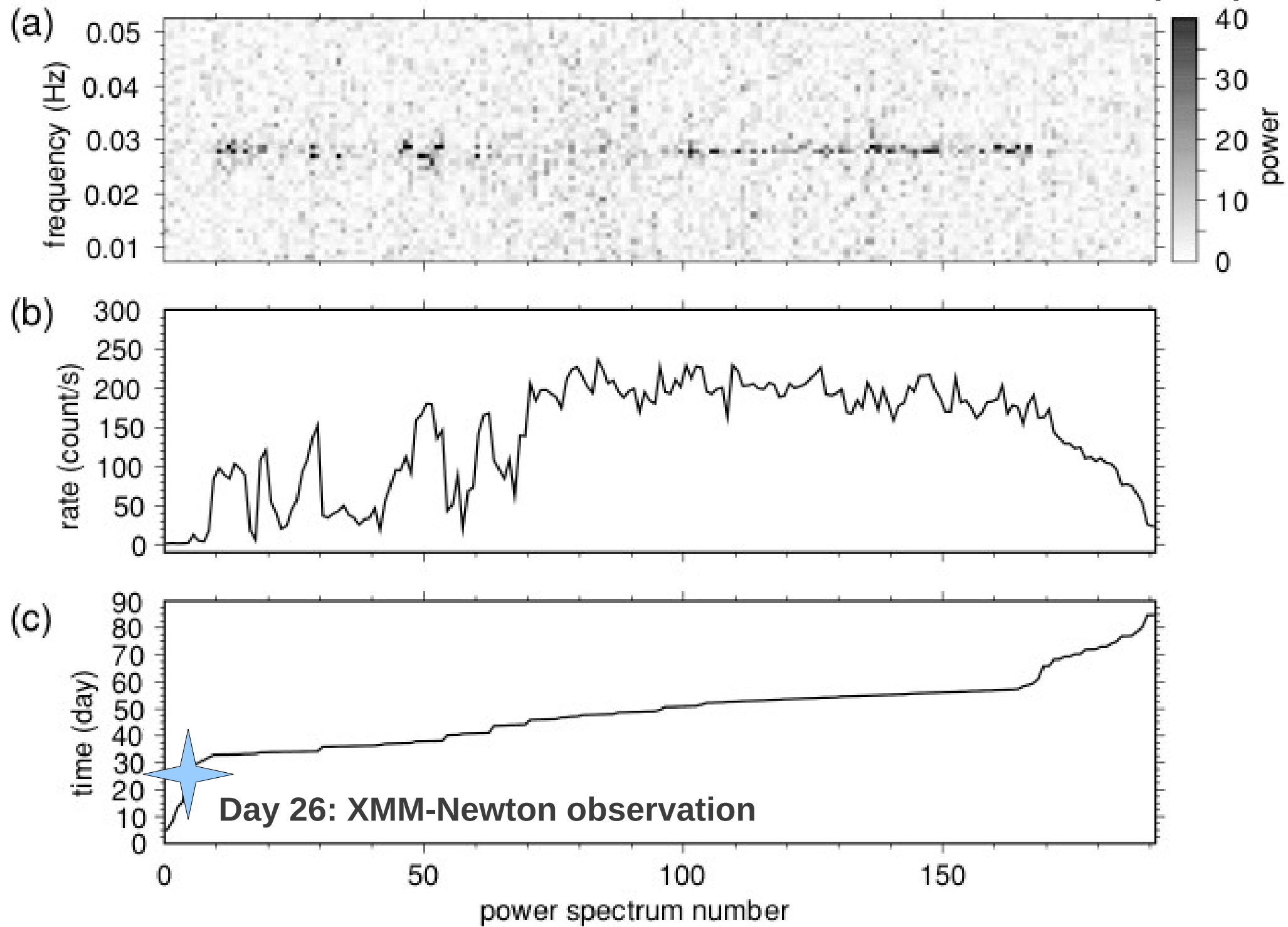
Jan-Uwe Ness

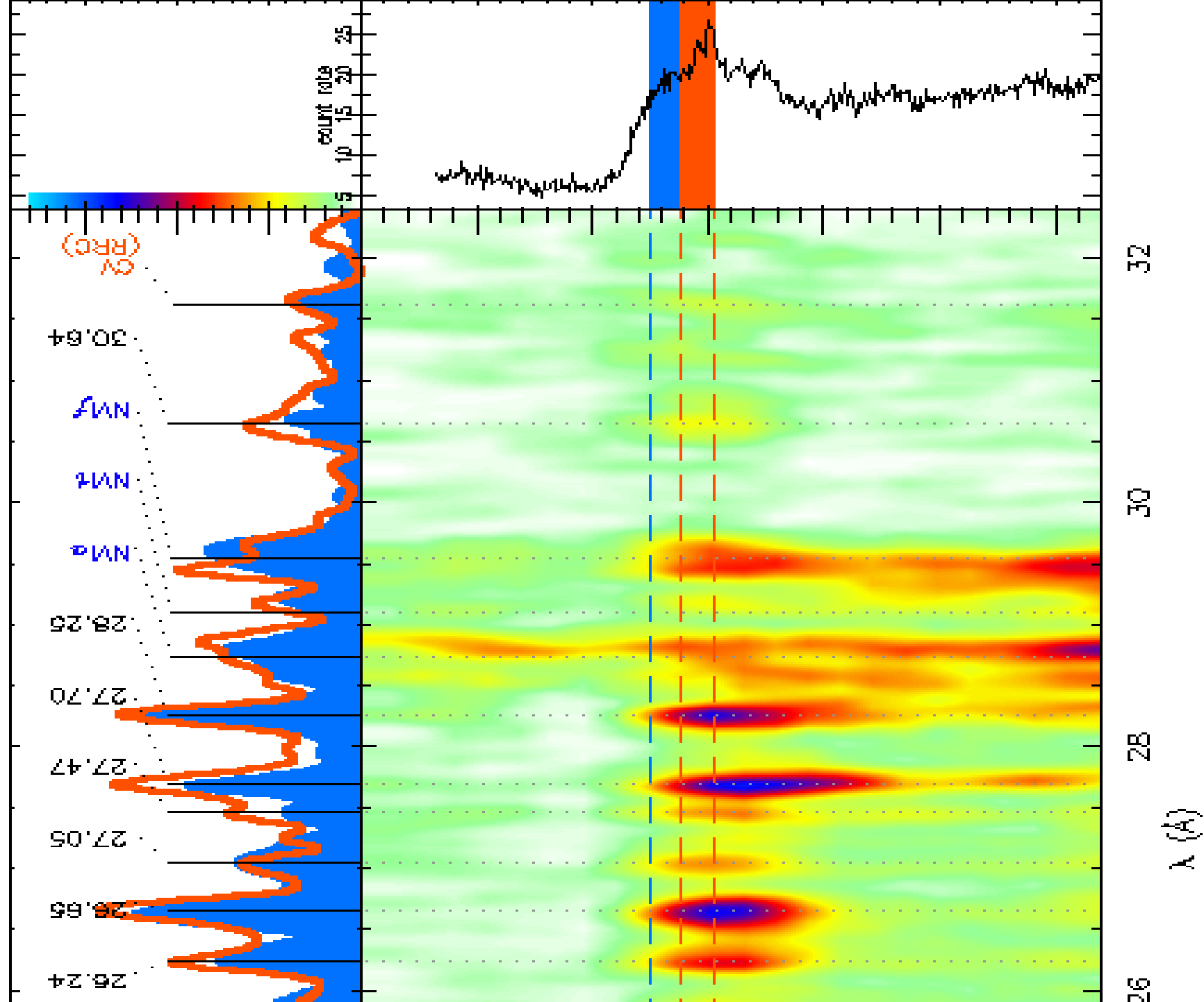
XMM-Newton Science Operations Centre

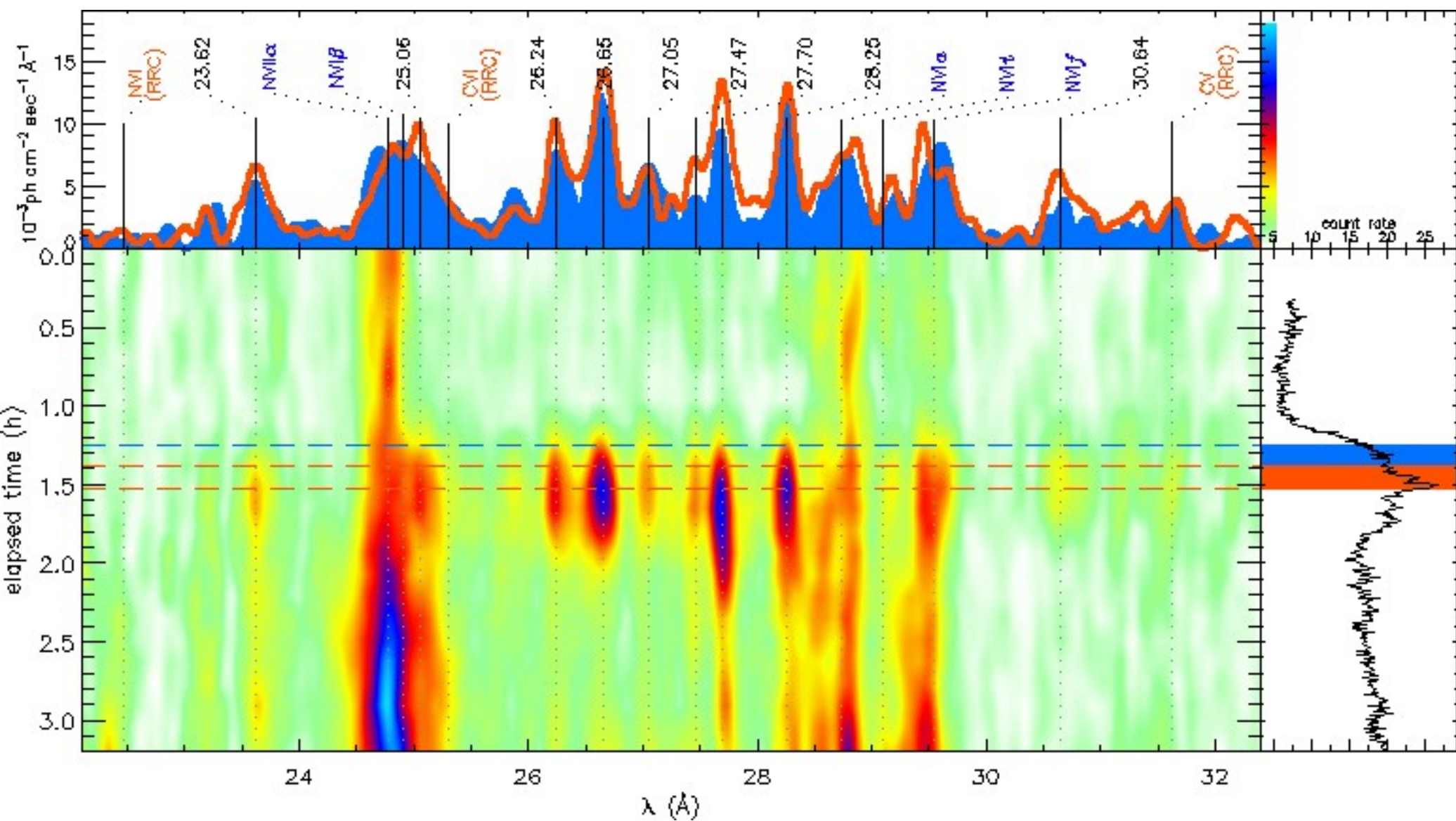
ESAC/ESA

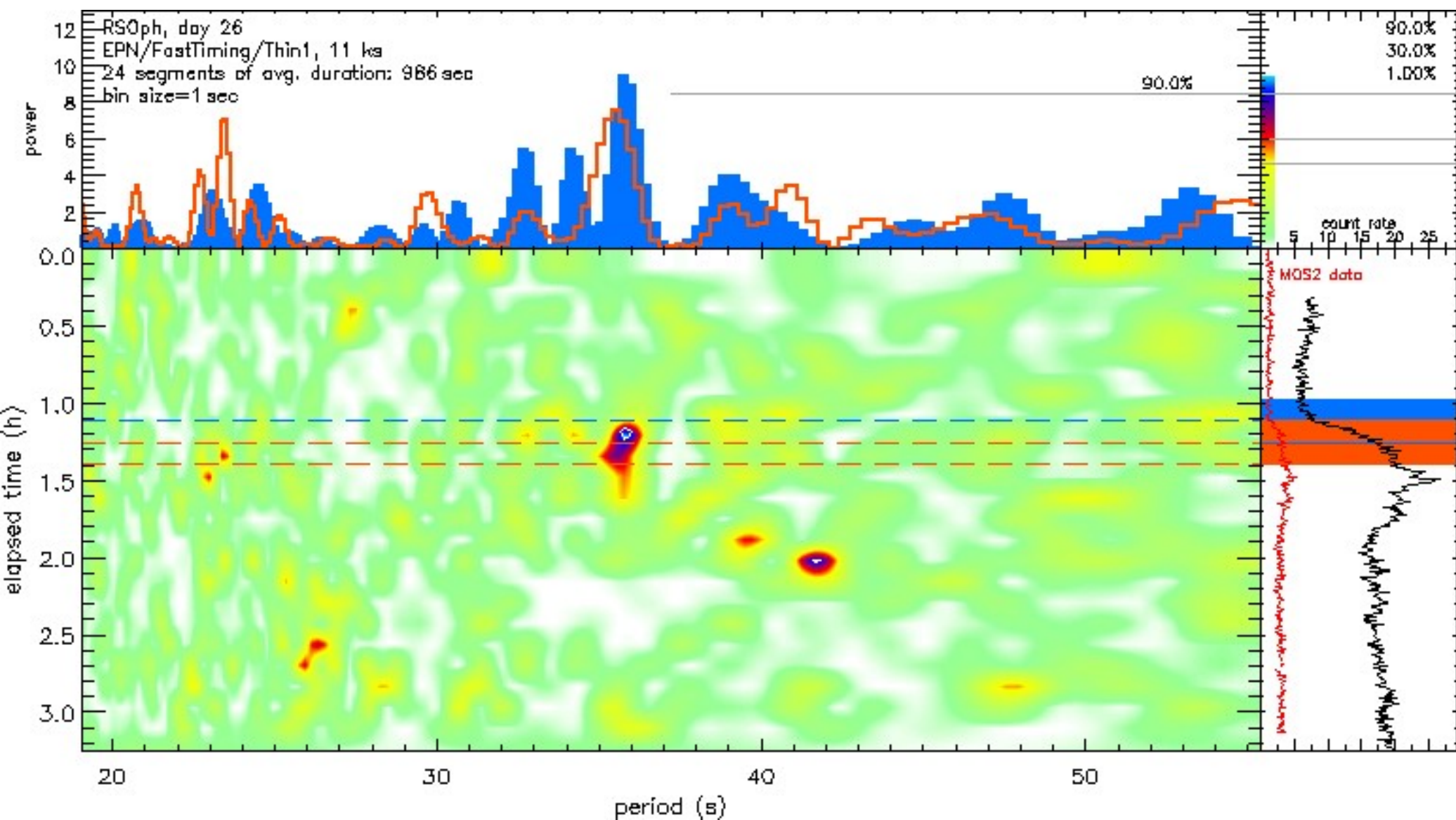
35-s oscillations in Swift observations of **RS Oph** (Osborne et al. 2011)



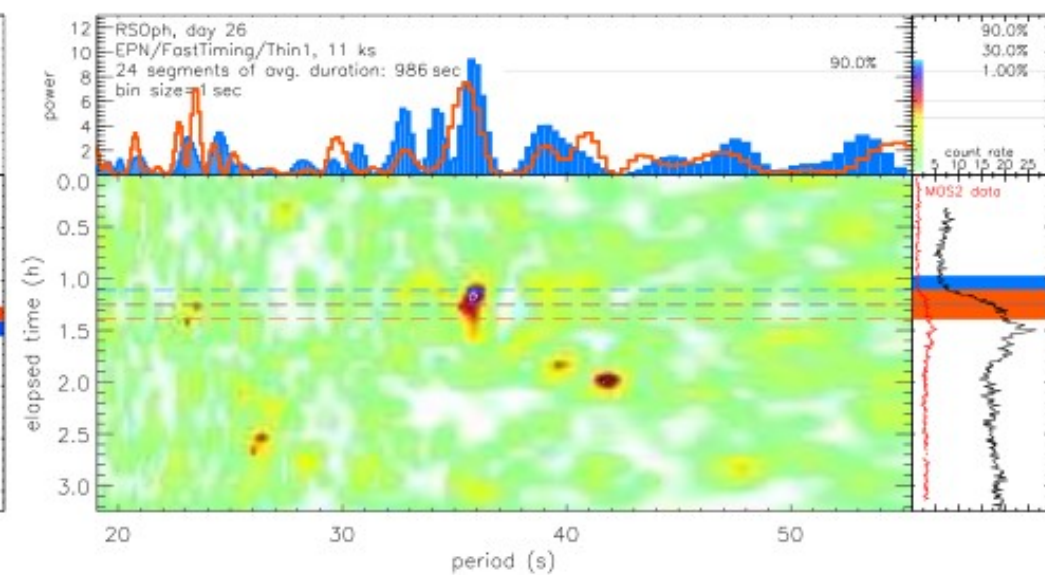
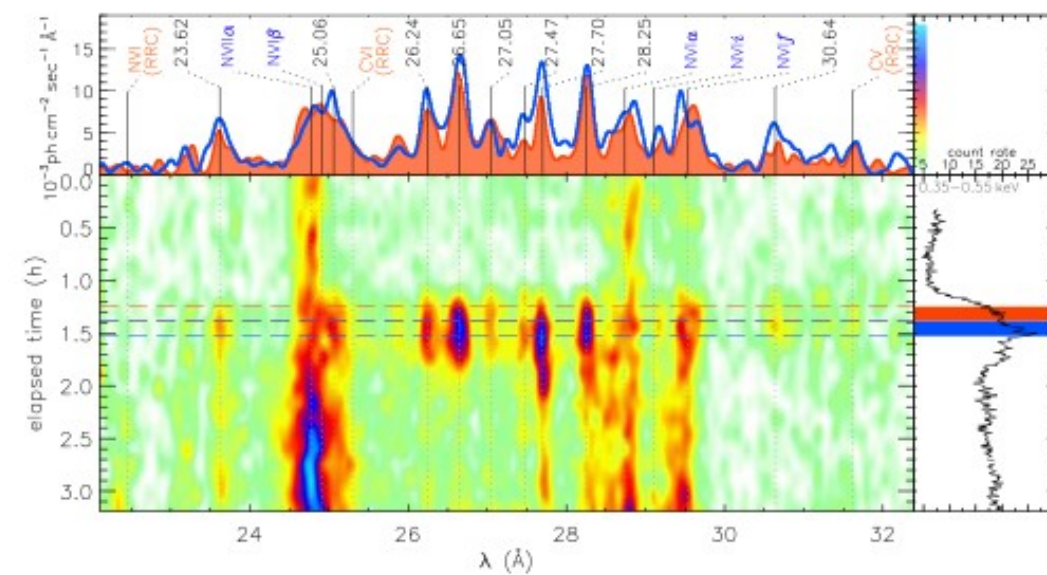


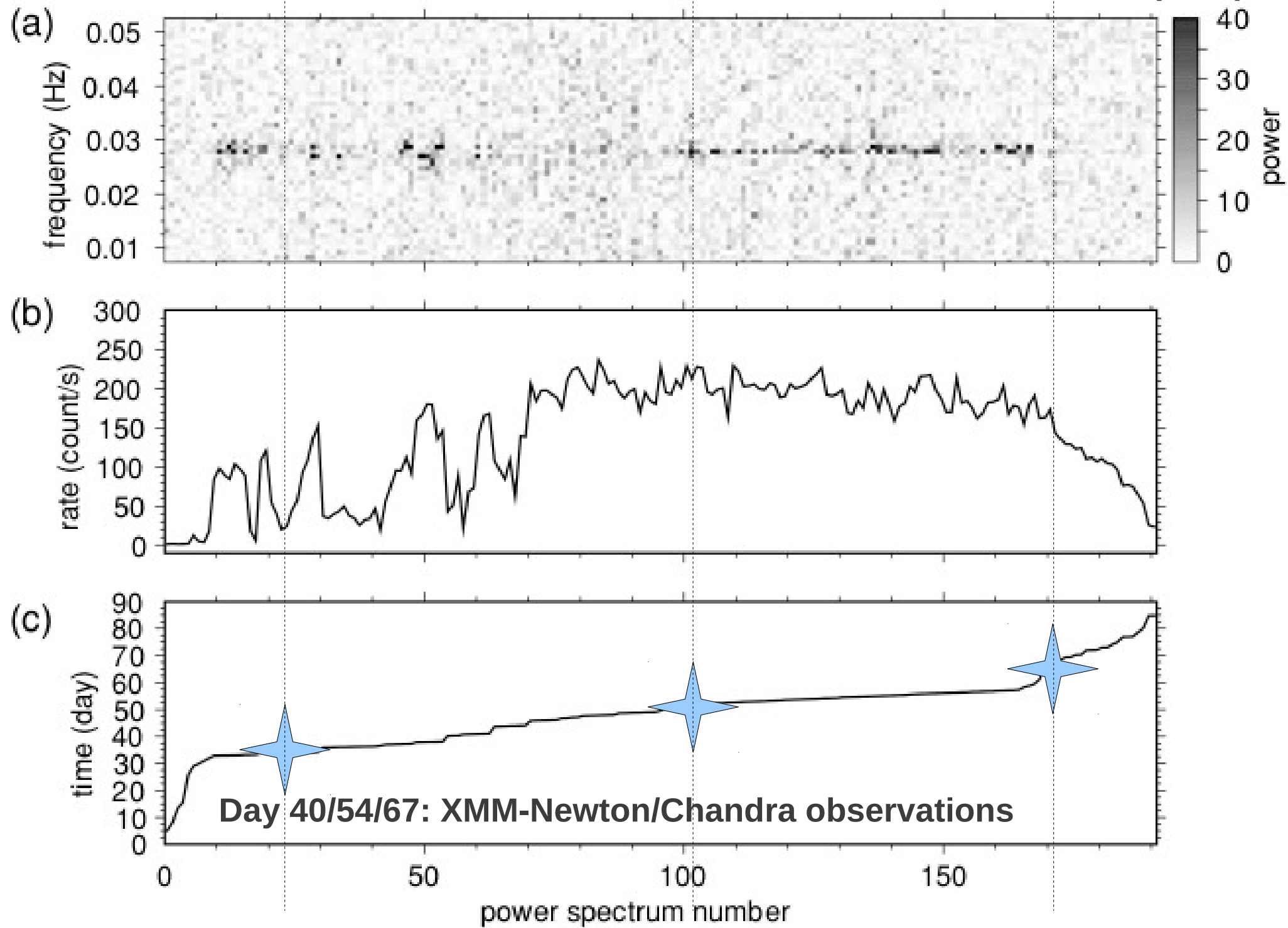


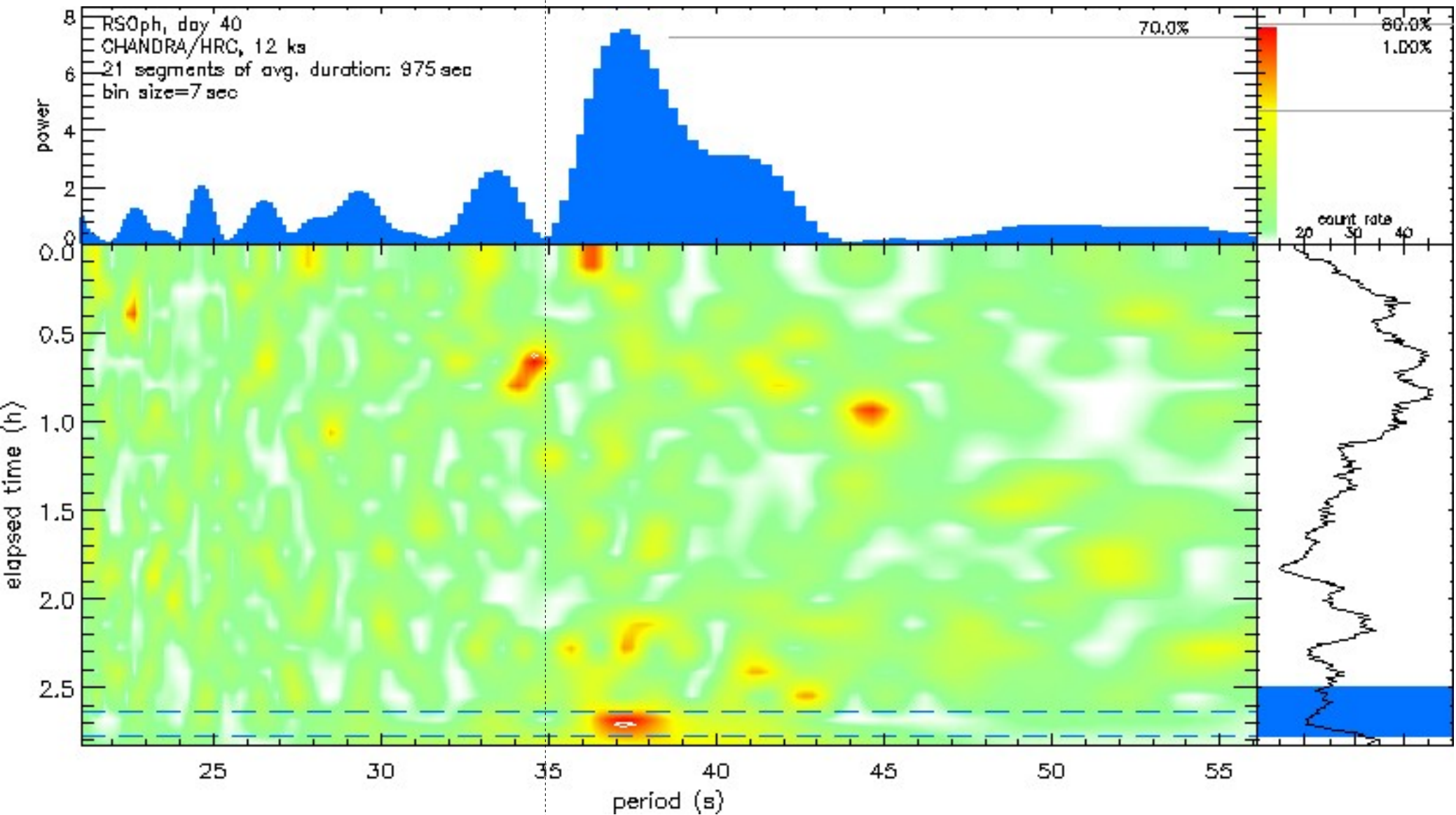


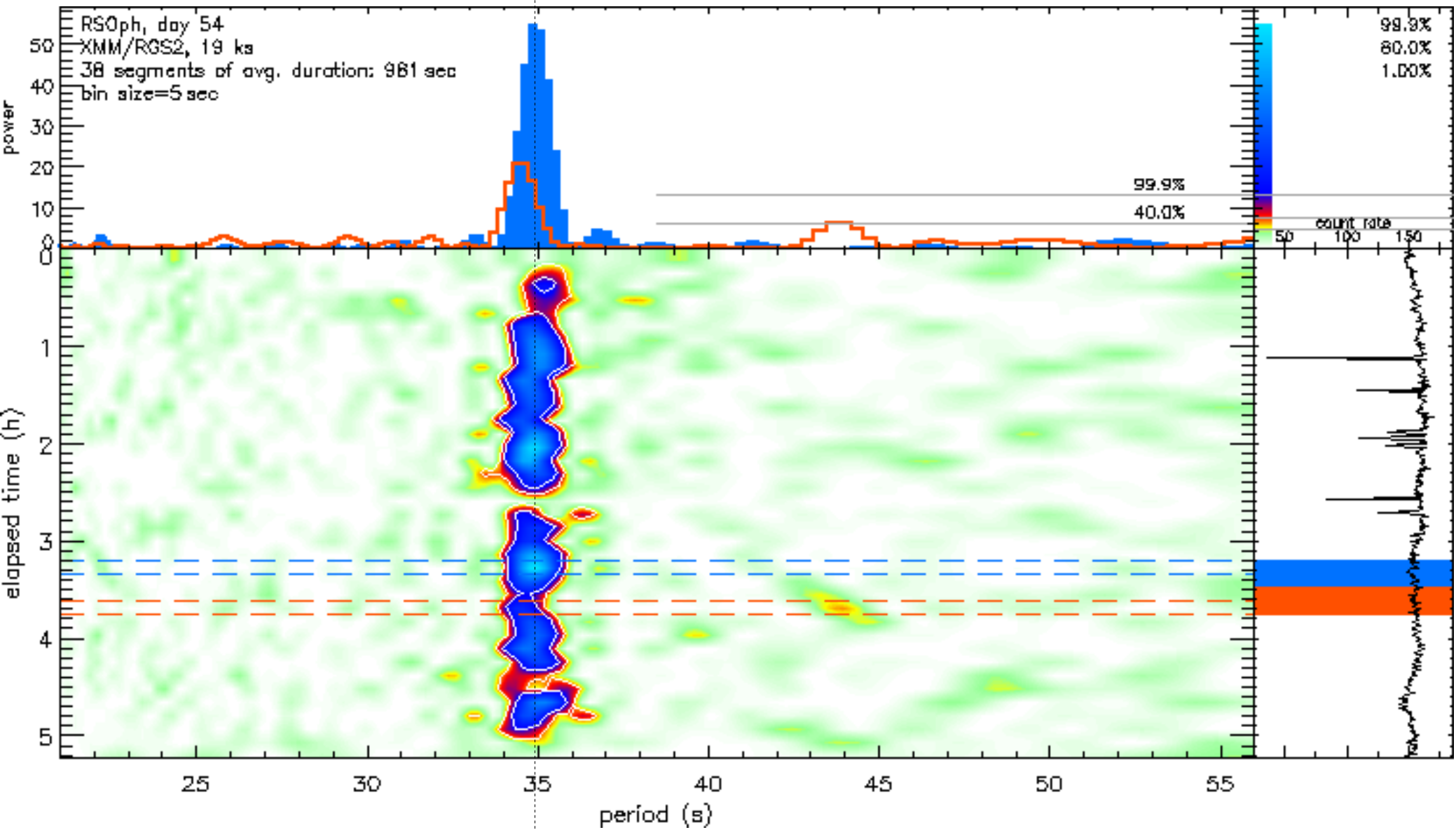


Ness et al.: Short-period X-ray oscillations in SSS

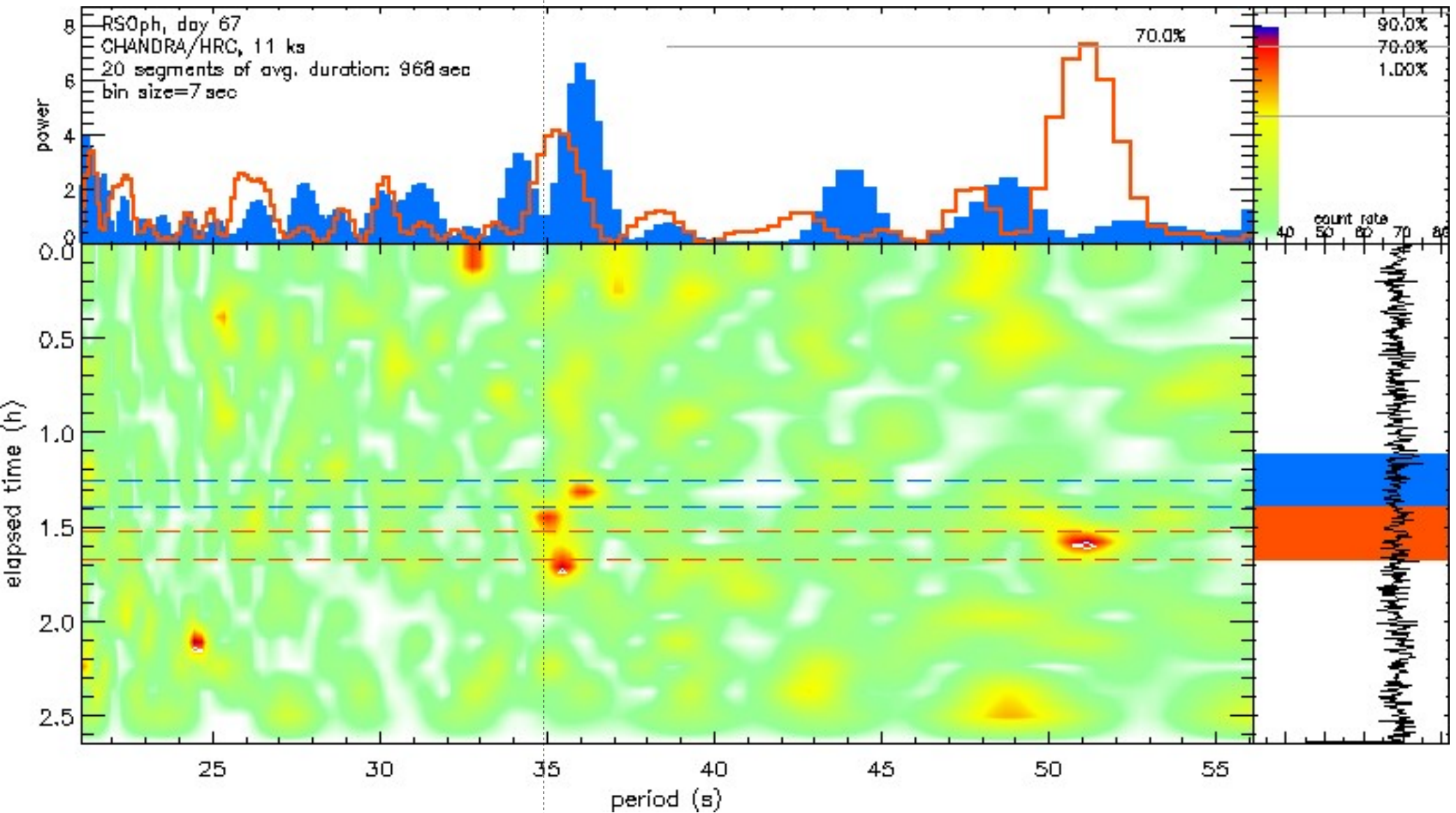




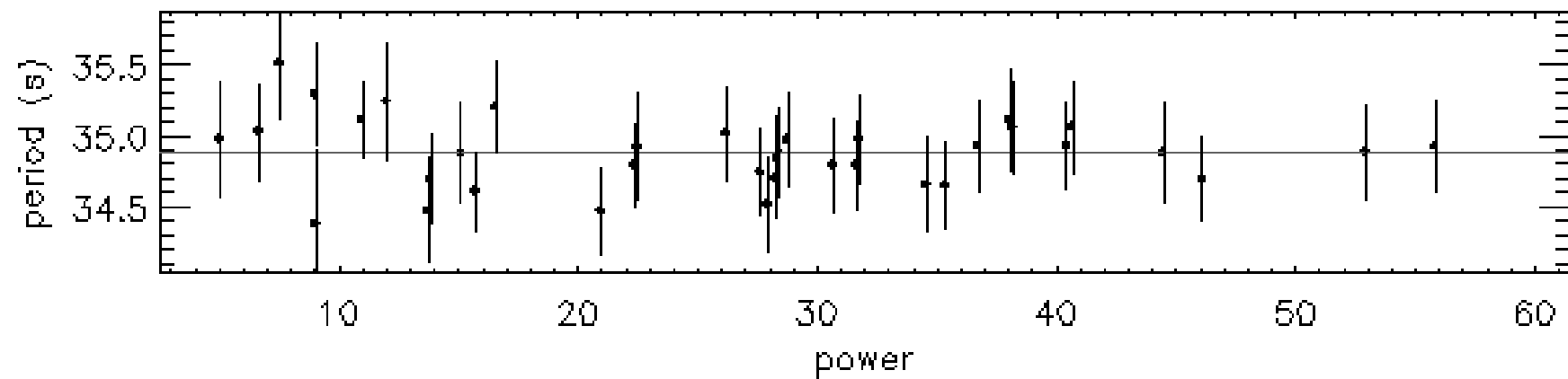
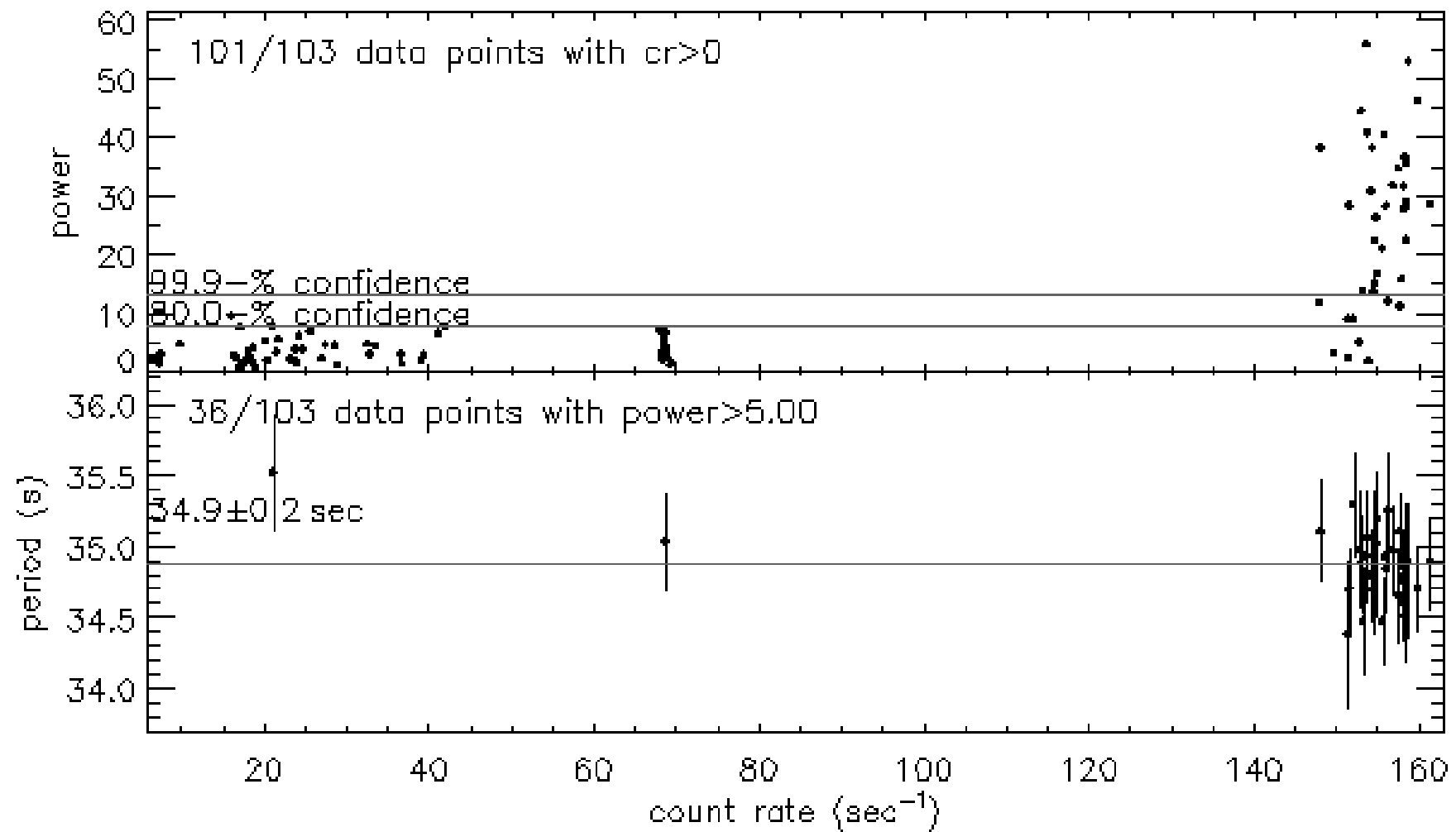




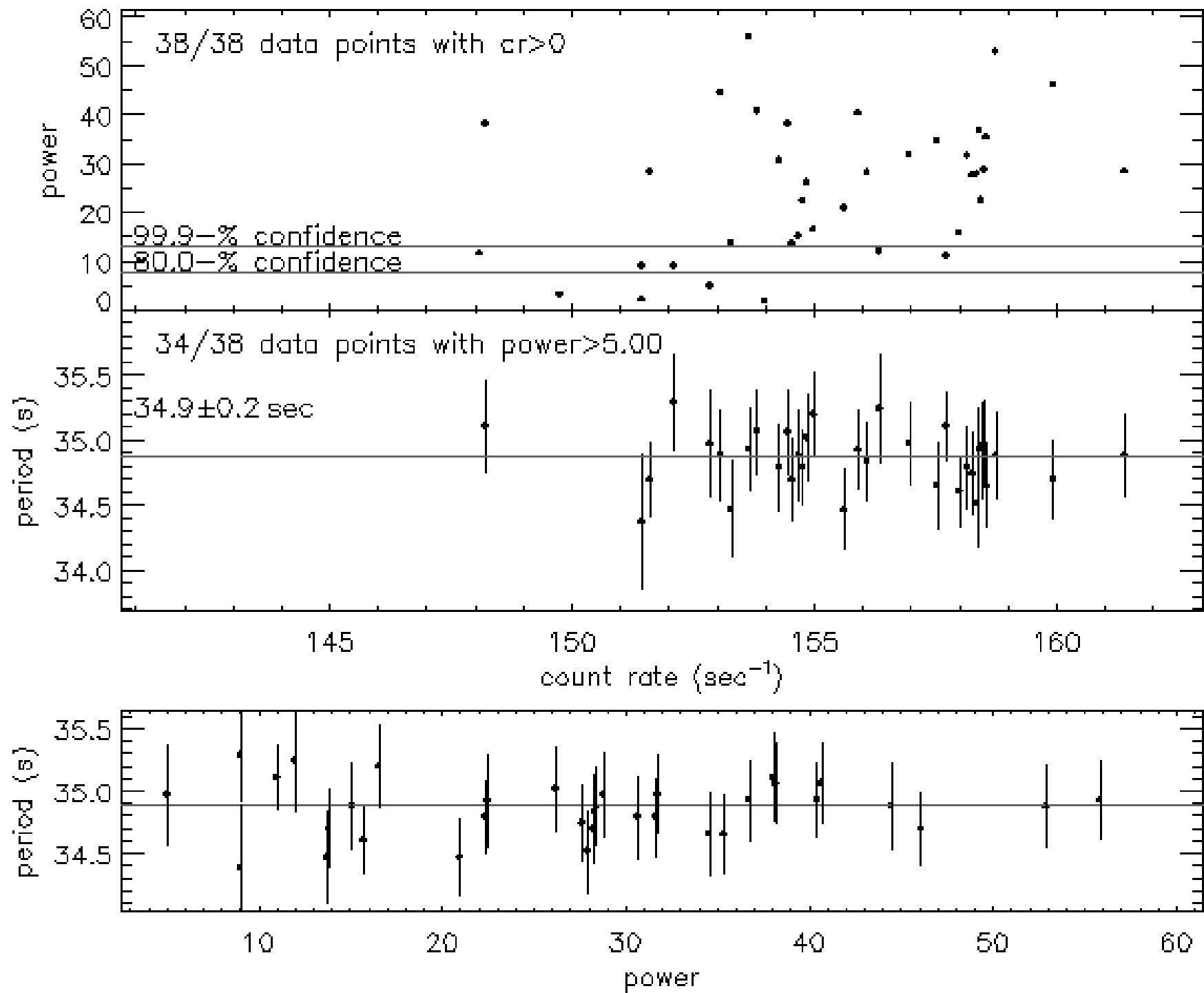
RS Oph: **Day 67** after 2006 outburst

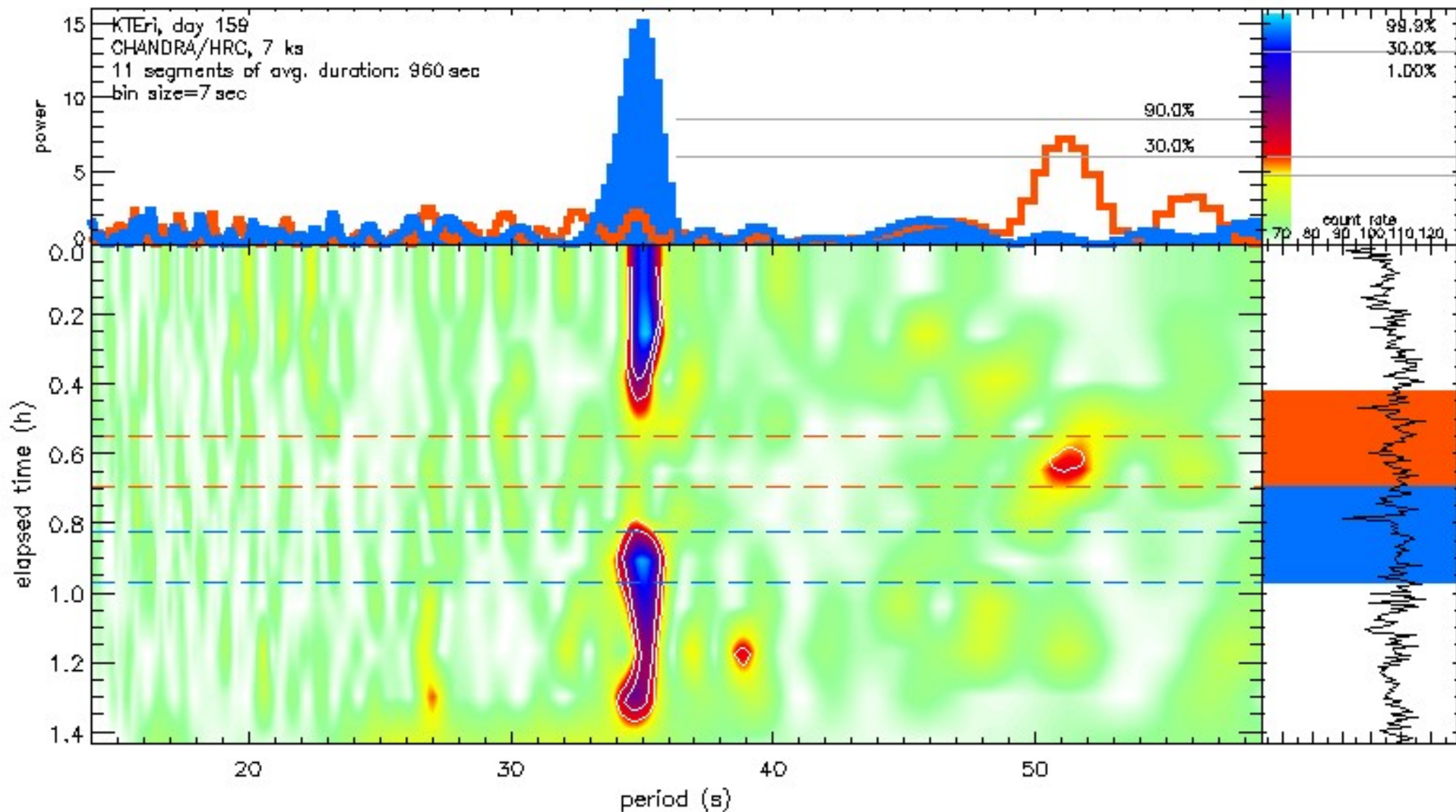


RS Oph: Day 40/54/67 after 2006 outburst



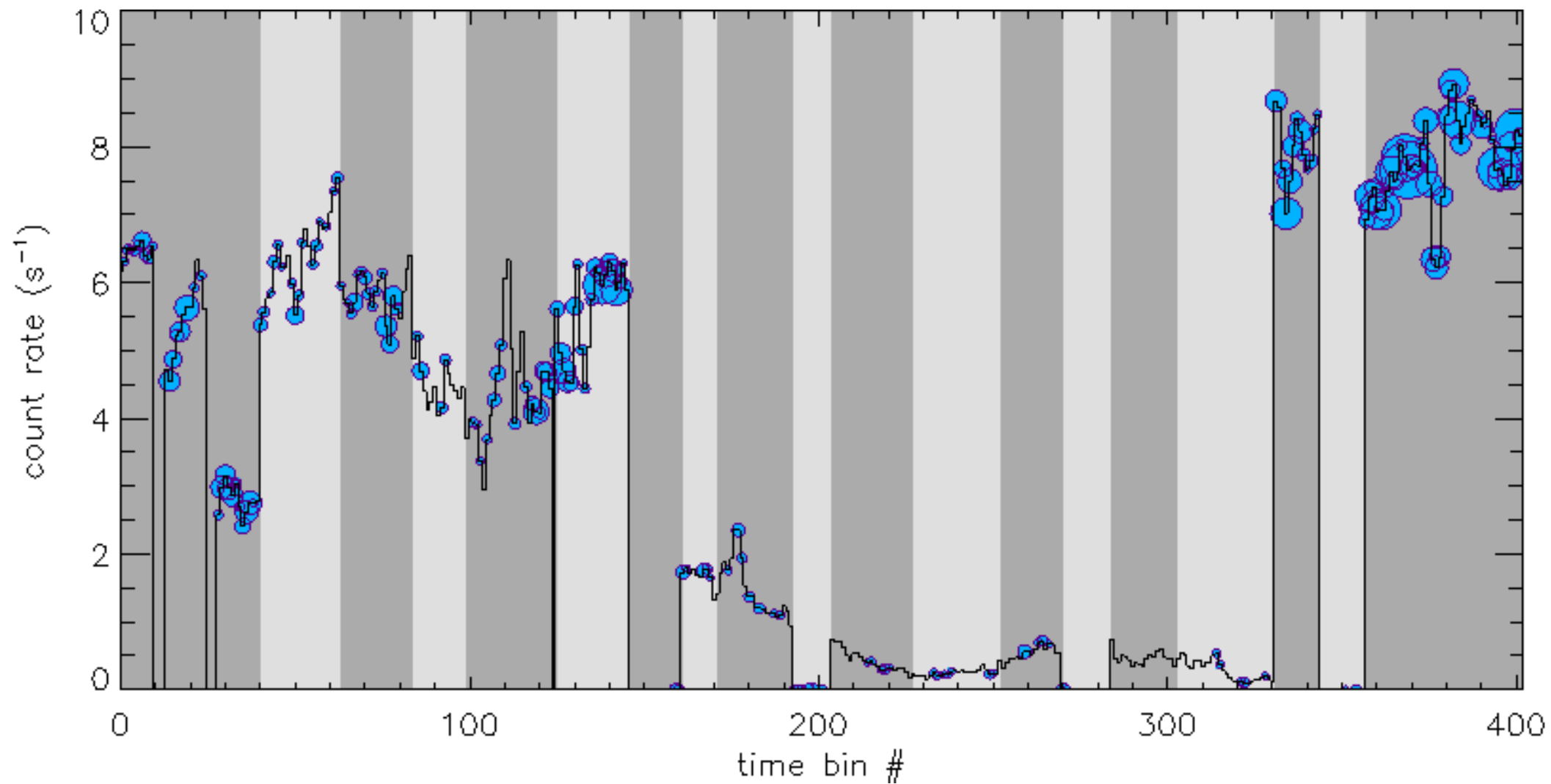
RS Oph: Day 54 after 2006 outburst



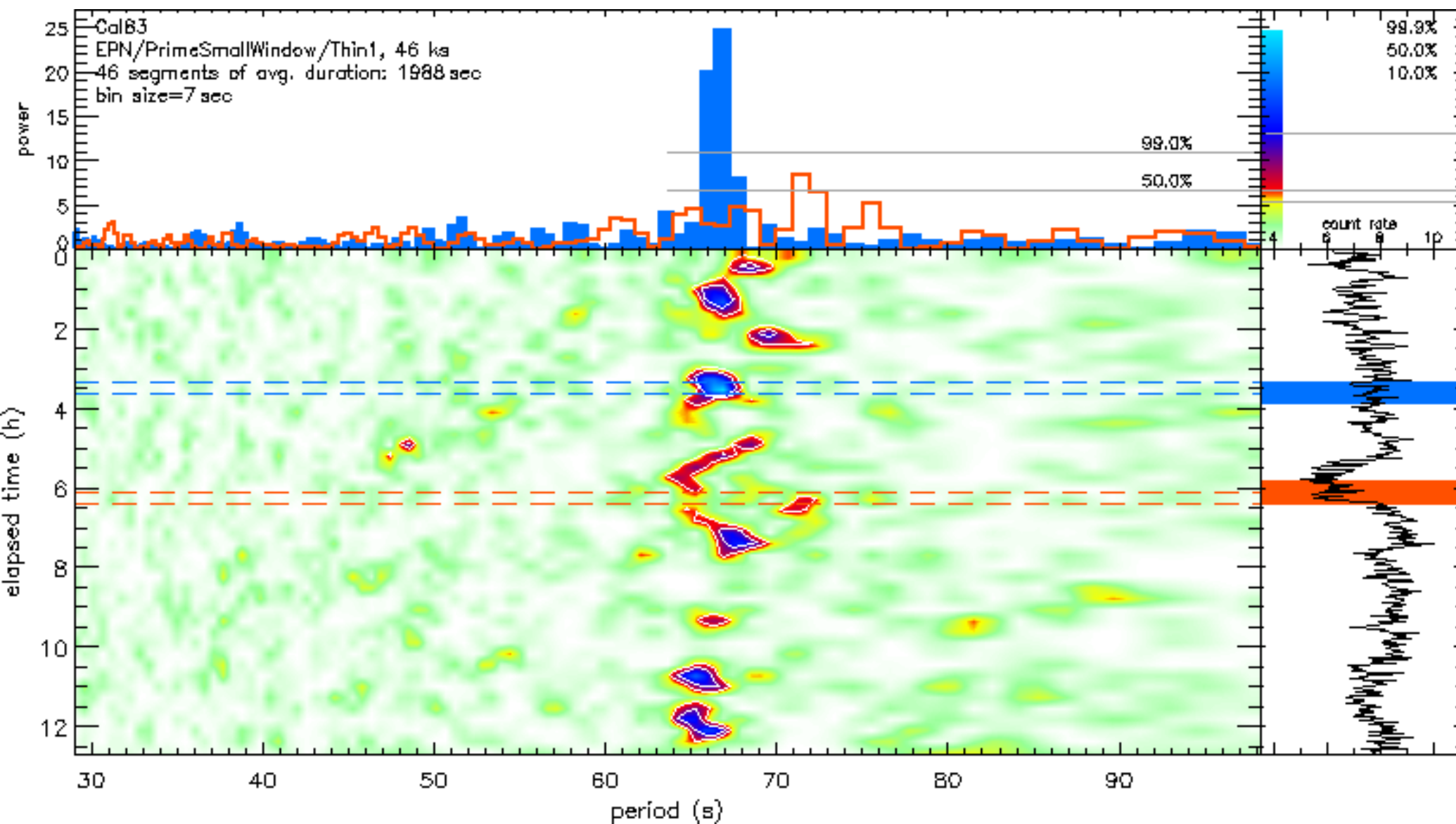


19 XMM-Newton observations of Cal 83

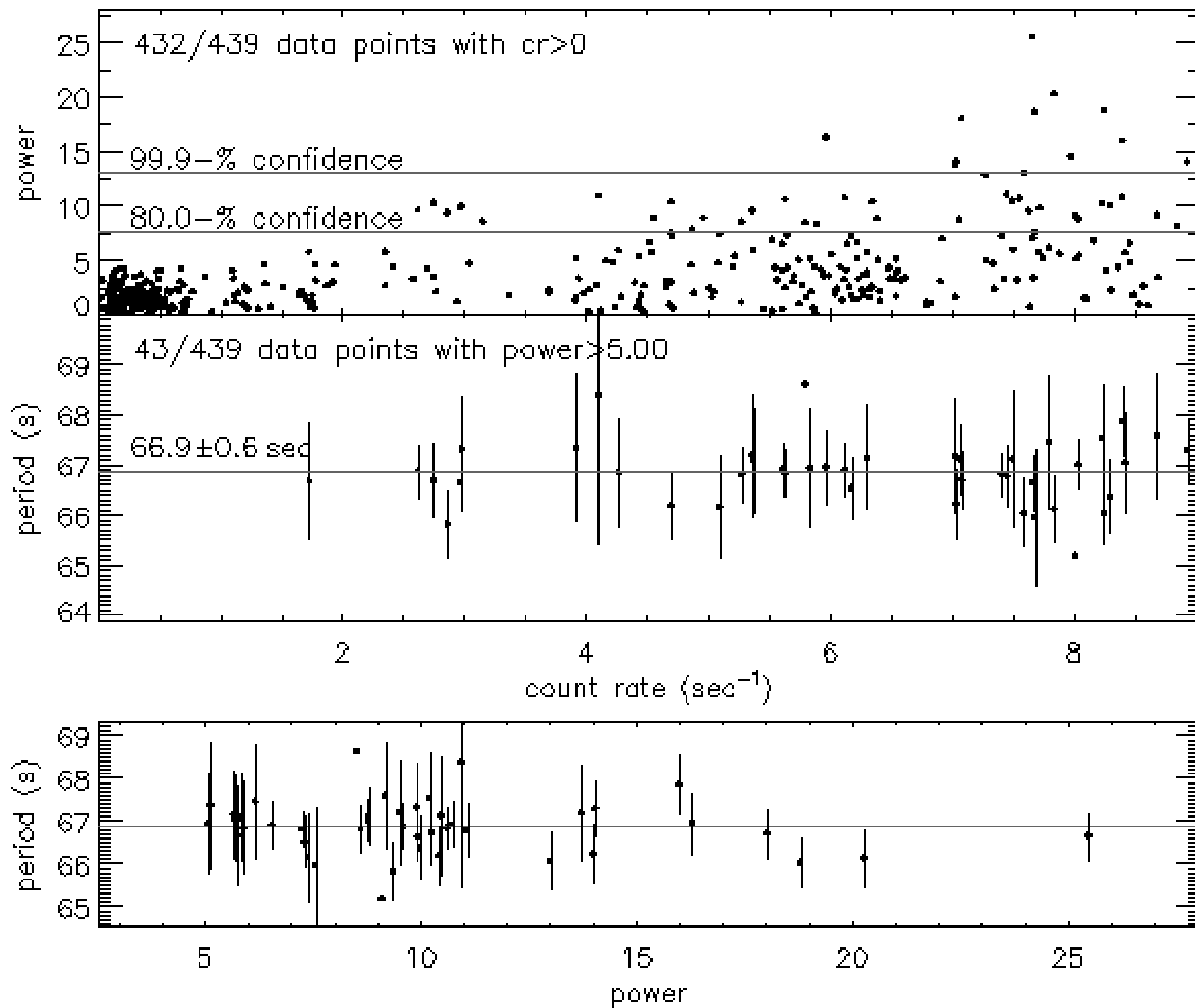
67-s period reported by Odendaal et al. (2014, MNRAS [437](#), 2948)



Cal 83

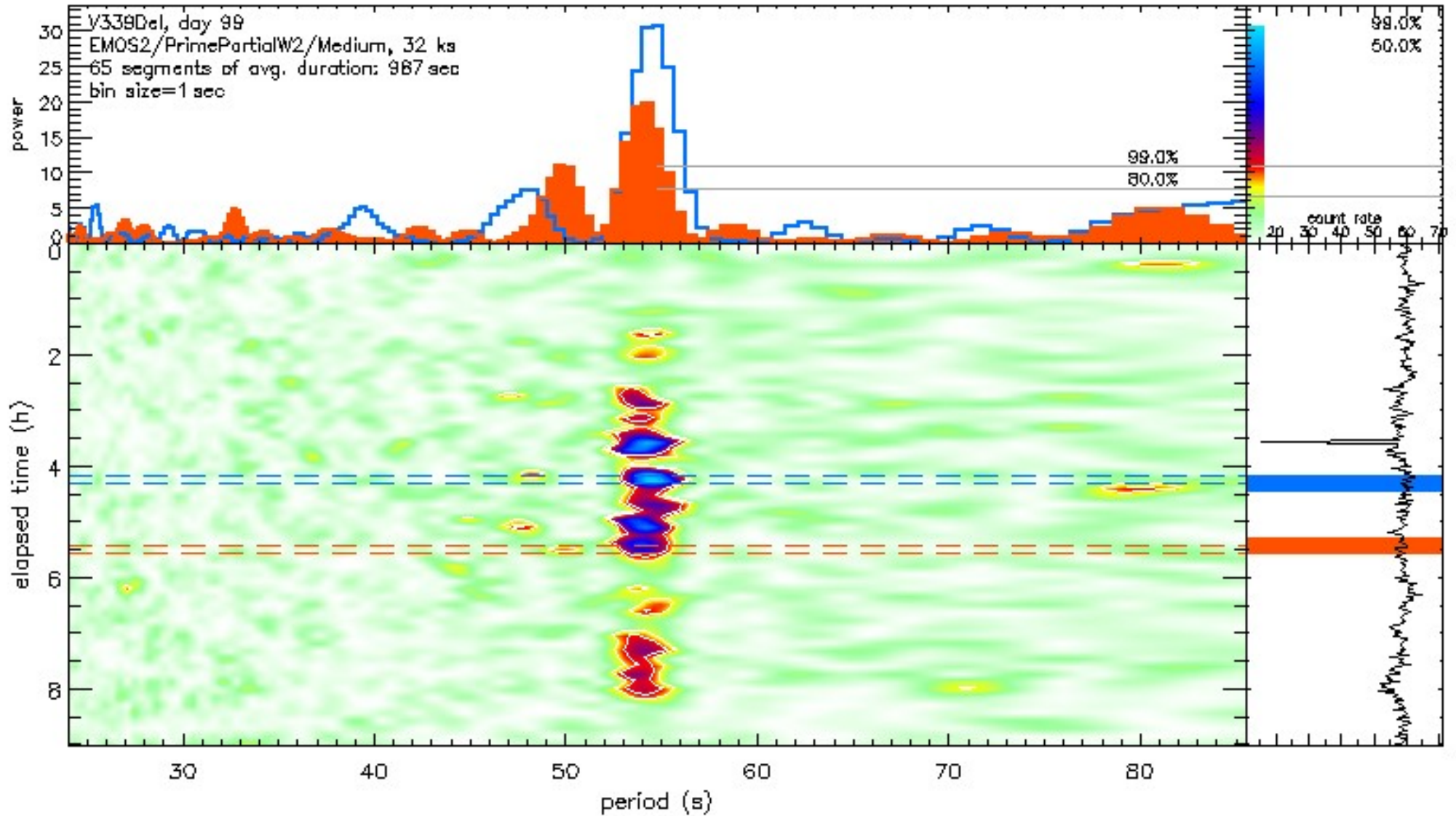


Cal 83

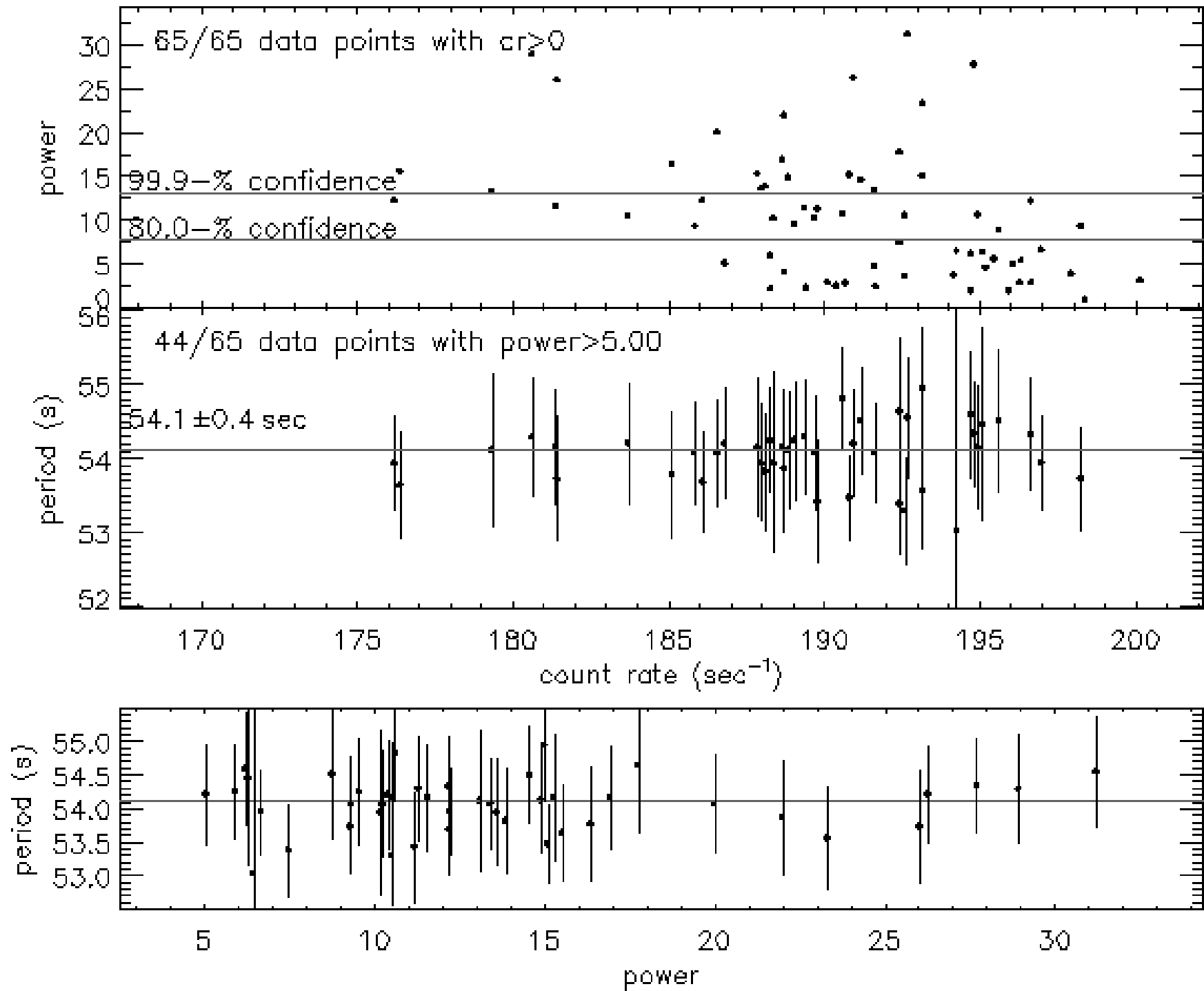


V339 Del: Day 99 after 2013 Aug 14.6

Beardmore et al. (2013, ATel 5573)
Ness et al. (2013 ATel 5626)

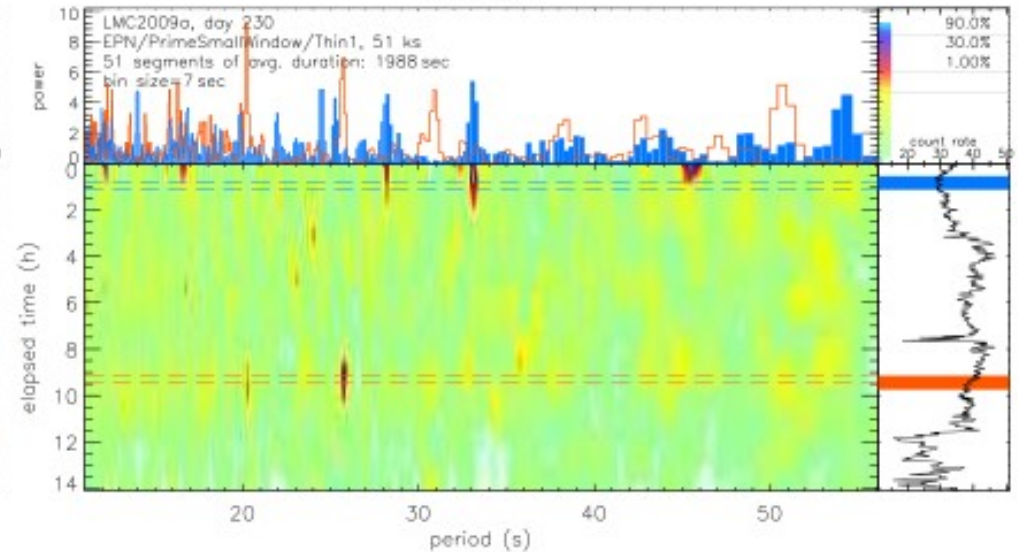
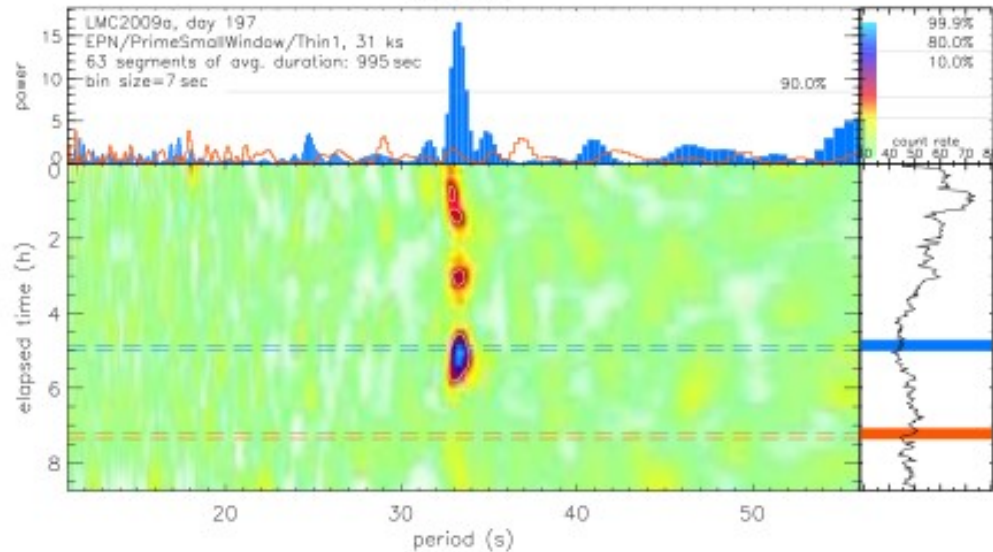
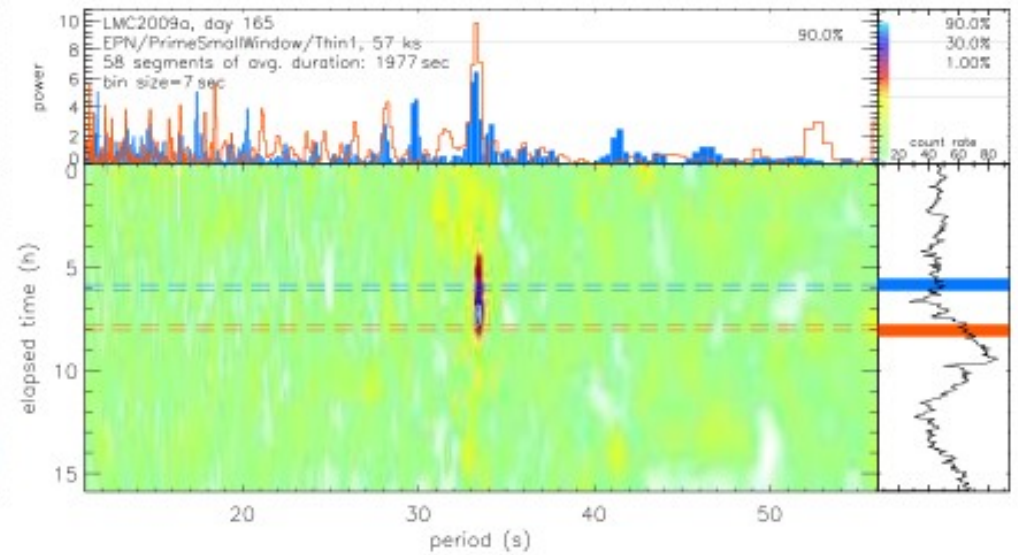
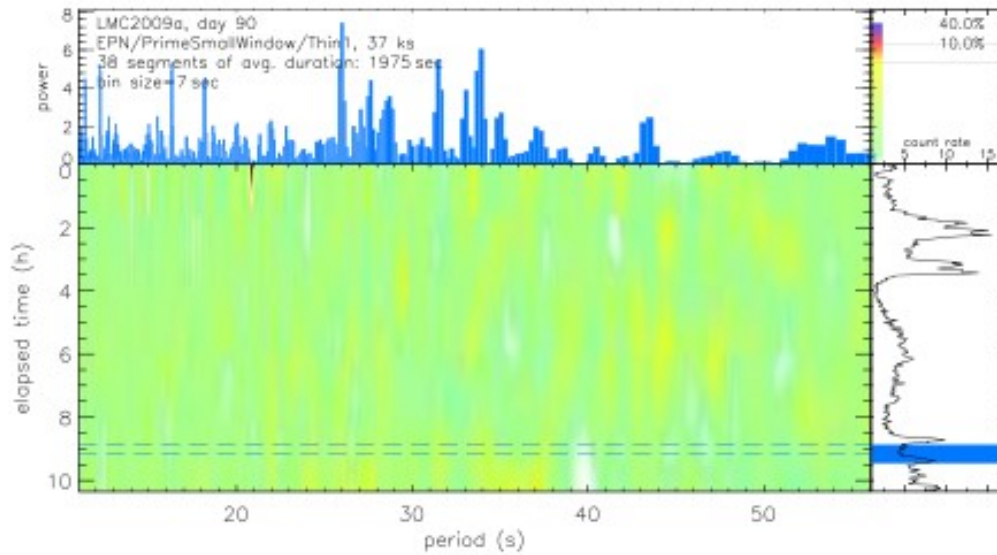


V339 Del: Day 99 after 2013 Aug 14.6

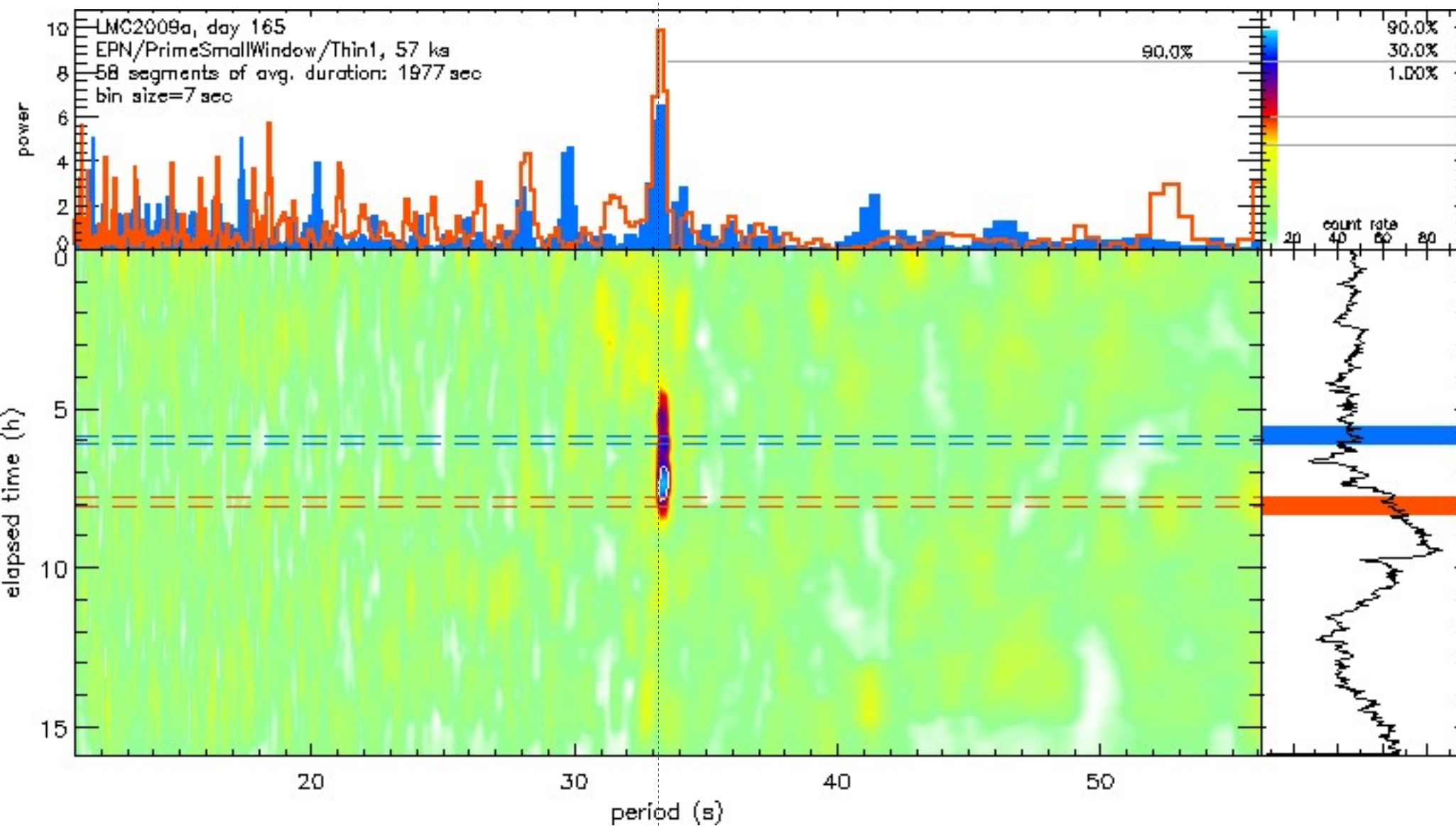


LMC 2009a: Days 90, 165, 197, 230 after 2009 Feb. 5

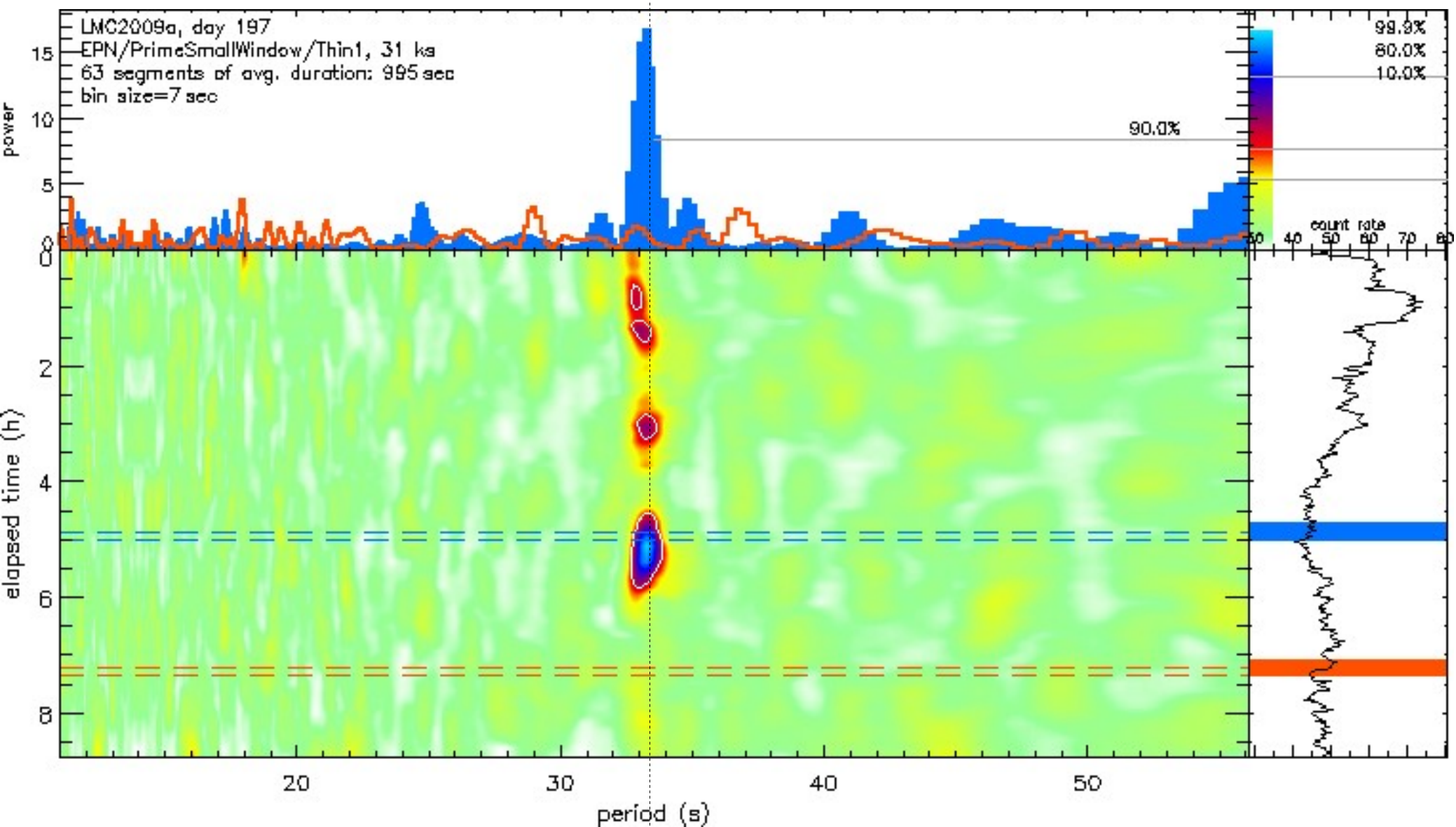
Ness et al. (2014, ATel 6147)



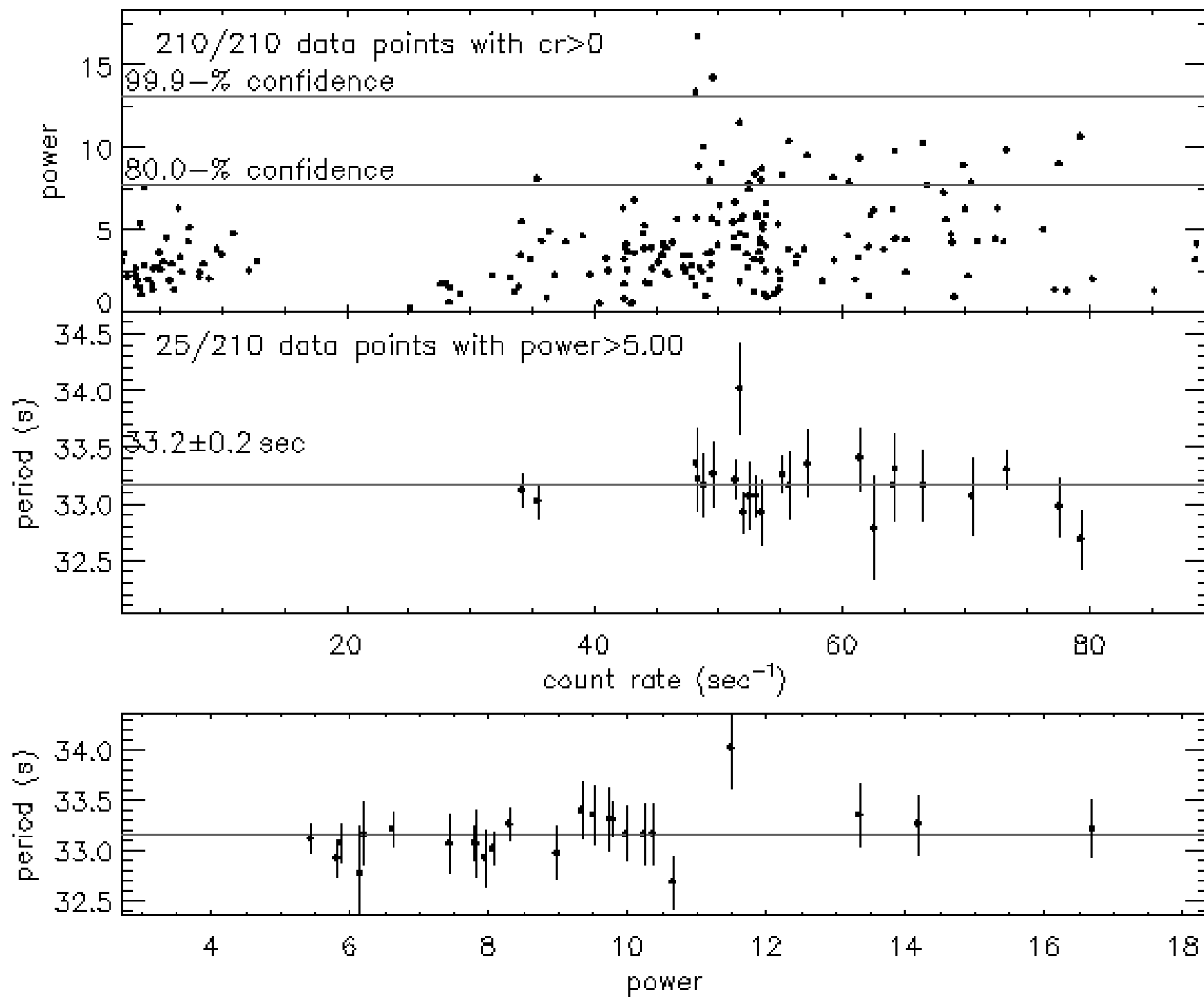
LMC 2009a: Day 165

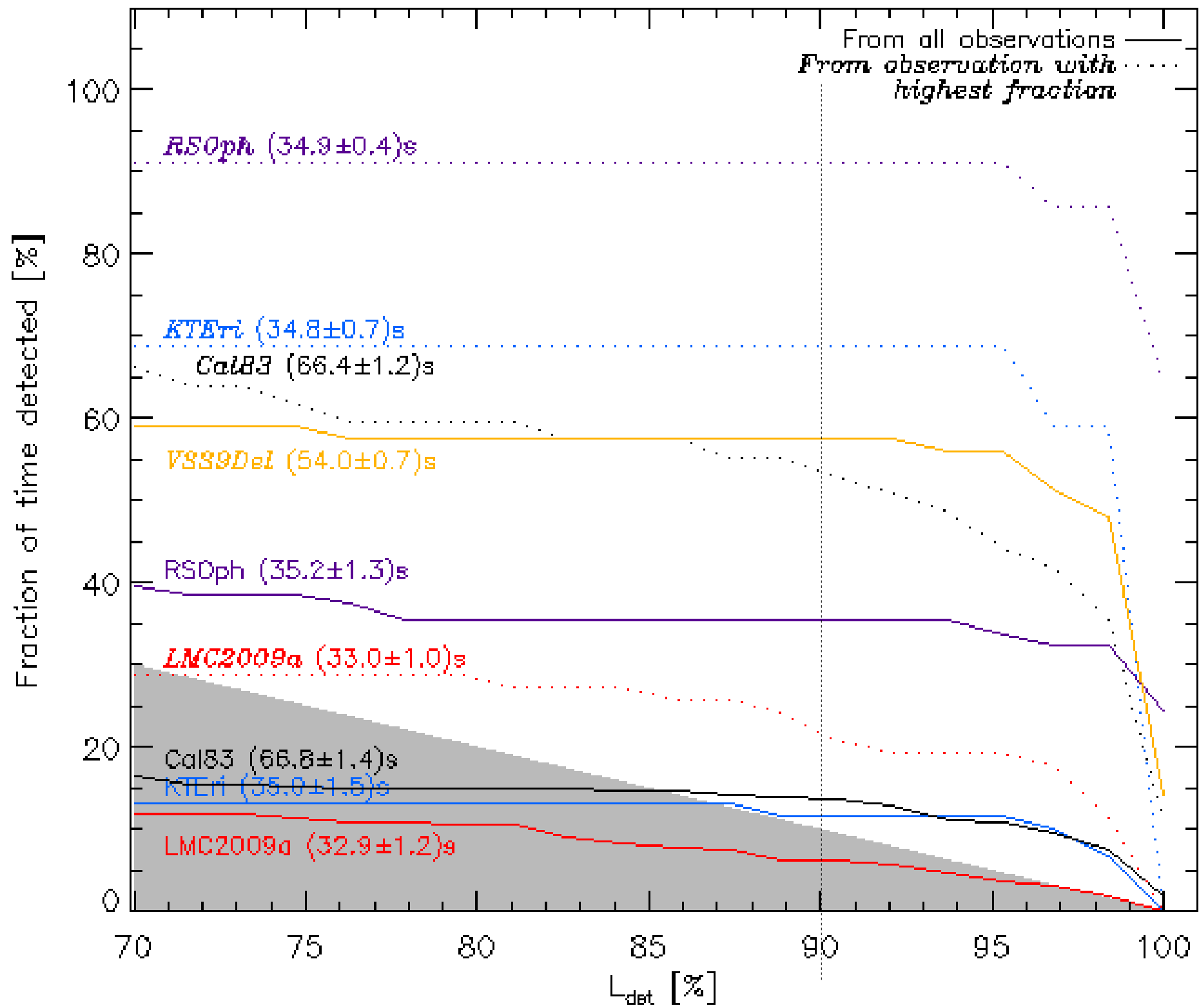


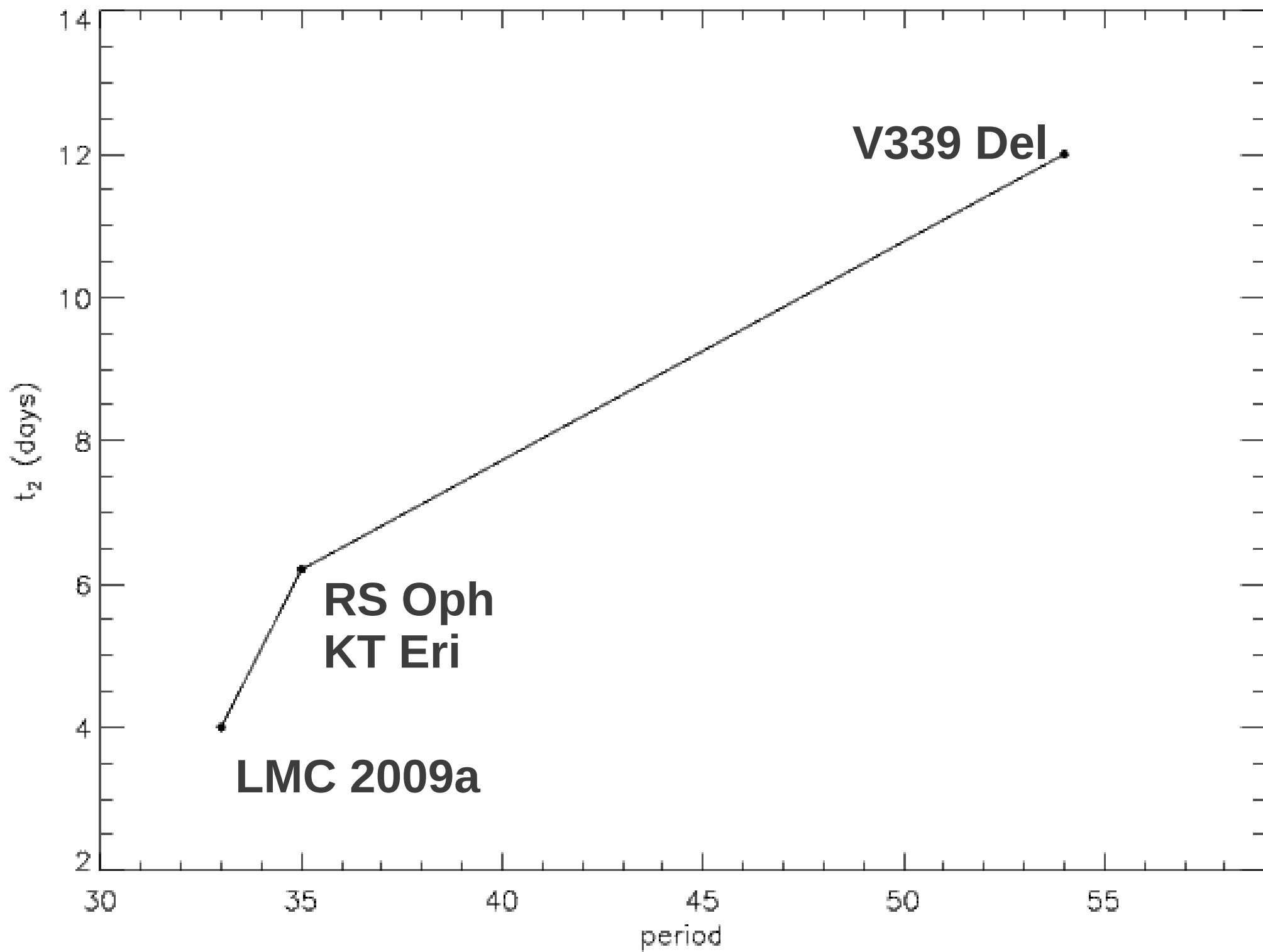
LMC 2009a: Day 197



LMC 2009a: Days 90, 165, 197, 230 after 2009 Feb. 5







Summary/Conclusions

Short transient periods confirmed by obs. from different instruments => not instrumental

Now 4 systems with similar periods:

LMC 2009a	33s (6.3-21%)	$t_2=4d$
RS Oph	35s (53-92%)	$t_2=7.9d/6.2d$
KT Eri	35s (12-69%)	$t_2=6.6d/6.2d$
V339 Del	54s (57%)	$t_2=12d$
Cal 83	67s (14-54%)	

Rotation?

Nuclear instabilities?

==> Need theories for high-luminosity environments

Perhaps diagnostics for WD mass?