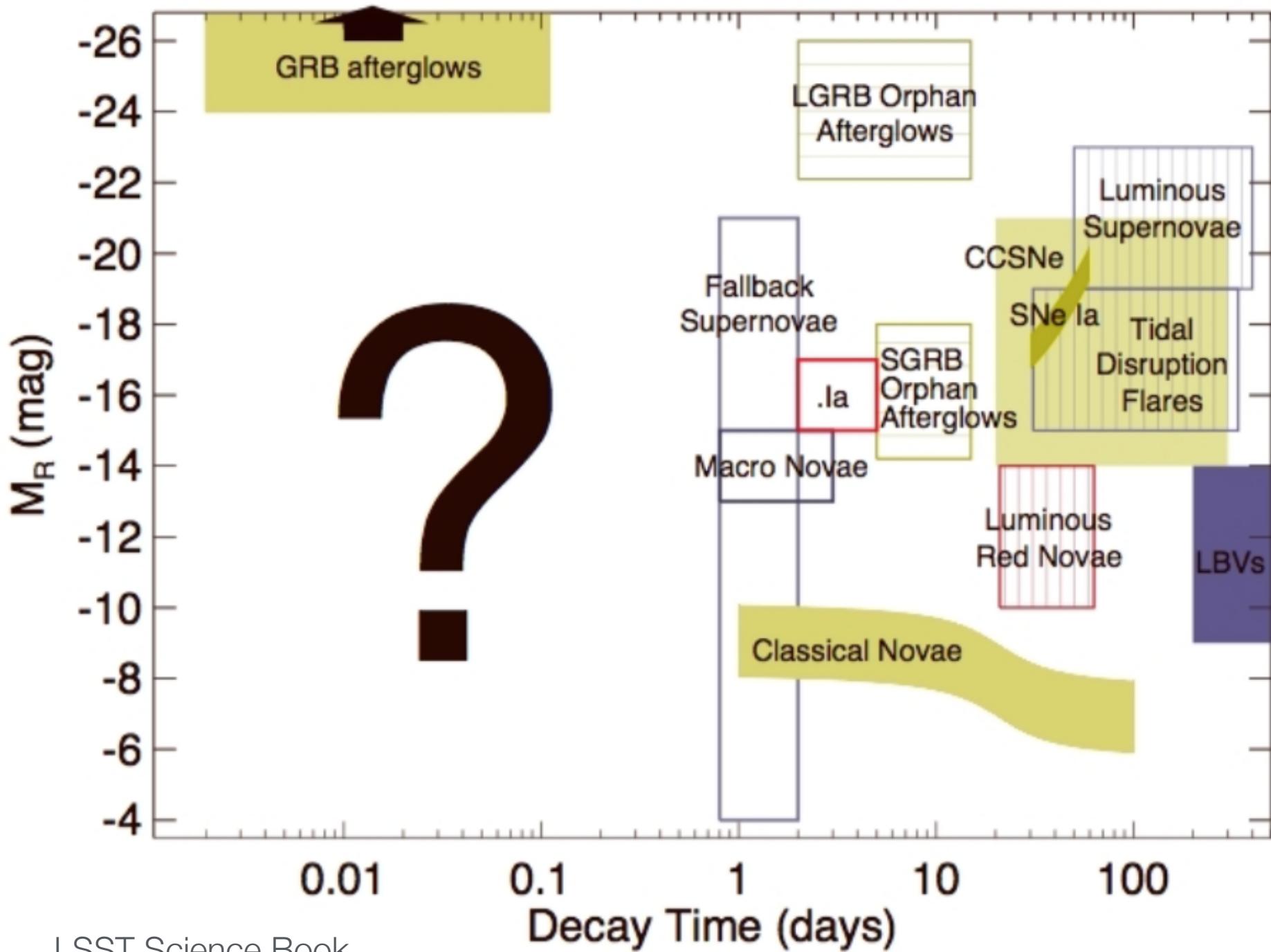


Fast Transients

Eric Bellm
for the LSST TVS Fast Transients subgroup



circa 2009...



THE WALL STREET JOURNAL.

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DJIA 11059.02 ▲ 141.51 1.3% NASDAQ 2207.90 ▲ 1.3% NIKKEI 11609.72 ▼ 5.0% DJ STOXX 50 2658.77 ▼ 3.1% 10-YR TREAS ▼ 3/32, yield 3.493% OIL \$91.15 ▼ \$4.56 GOLD \$776.50 ▼ \$6.60 EURO \$1.4143 YEN 105.92

U.S. to Take Over AIG in \$85 Billion Bailout; Central Banks Inject Cash as Credit Dries Up

Emergency Loan Effectively Gives Government Control of Insurer; Historic Move Would Cap 10 Days That Reshaped U.S. Finance

The U.S. government seized control of American International Group Inc.—one of the world's biggest insurers—in an \$85 billion deal that signaled the intensity of its concerns about the danger a collapse could pose to the financial system.

By Matthew Karnitschnig, Deborah Solomon, Liam Pleven and Jon E. Hilseworth

The step marks a dramatic turnaround for the federal government, which had been strongly resisting overtures from AIG for an emergency loan or some intervention that would prevent the insurer from falling into bankruptcy. Just last weekend, the government essentially pulled the plug on Lehman Brothers Holdings Inc., allowing the big investment bank to go under instead of giving it financial support. This time, the government decided AIG truly was too big to fail.

The U.S. negotiators drove a hard bargain. Under terms hammered out Tuesday night, the Fed will lend up to \$85 billion to AIG, and the U.S. government will effectively get a 79.9% equity stake in the insurer in the form of warrants

sets, including its profitable insurance businesses, giving the Fed some protection even if markets continue to sink. And if AIG rebounds, taxpayers could reap a big profit through the government's equity stake.

"This loan will facilitate a process under which AIG will sell certain of its businesses in an orderly manner, with the least possible disruption to the overall economy," the Fed said in a statement.

It puts the government in control of a private insurer—a historic development, particularly considering that AIG isn't directly regulated by the federal government. The Fed took the highly unusual step using legal authority granted in the Federal Reserve Act, which allows it to lend to non-banks under "unusual and exigent" circumstances, something it invoked when Bear Stearns Cos. was rescued in March.

As part of the deal, Treasury Secretary Henry Paulson insisted that AIG's chief executive, Robert Willumstad, step aside. Mr. Paulson personally told Mr. Willumstad the news in a phone call on Tuesday, according to a person familiar with the call.

Mr. Willumstad will be succeeded by Edward Liddy, the

housing and insurance industries, while Wall Street has watched two of its last four big independent brokerage firms exit the scene.

The U.S. on Sept. 6 took over mortgage-lending giants Fannie Mae and Freddie Mac as they teetered near collapse. This Sunday, the U.S. refused to bail out Wall Street pillar Lehman Brothers, which filed for bankruptcy-court protection and is now being sold off in pieces. That same day, another struggling Wall Street titan, Merrill Lynch & Co., agreed to sell itself to Bank of America Corp.

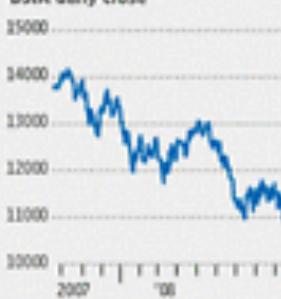
The AIG deal followed a day of high drama in Washington. The Treasury's Mr. Paulson and Federal Reserve Chairman Ben Bernanke convened in the early evening an unexpected meeting of top congressional leaders. Late in the trading day Tuesday, anticipation that the government might assist the insurer helped propel the Dow Jones Industrial Average to a 1.3% gain.

In bailing out AIG, the Federal Reserve appeared to be motivated in part by worries that Wall Street's financial crisis could begin to spill over into seemingly safe investments held by small investors, such as money-market funds that invest in AIG debt.

Urgent Mission

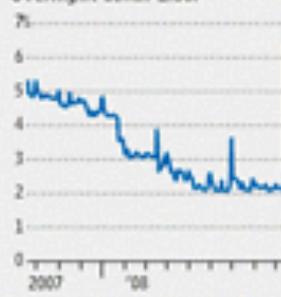
Plunging shares, soaring credit costs push the government to step in.

DJIA daily close



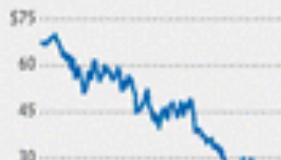
Fed chief Ben Bernanke

Overnight dollar Libor



Treasury Secretary Hank Paulson

AIG's daily share price



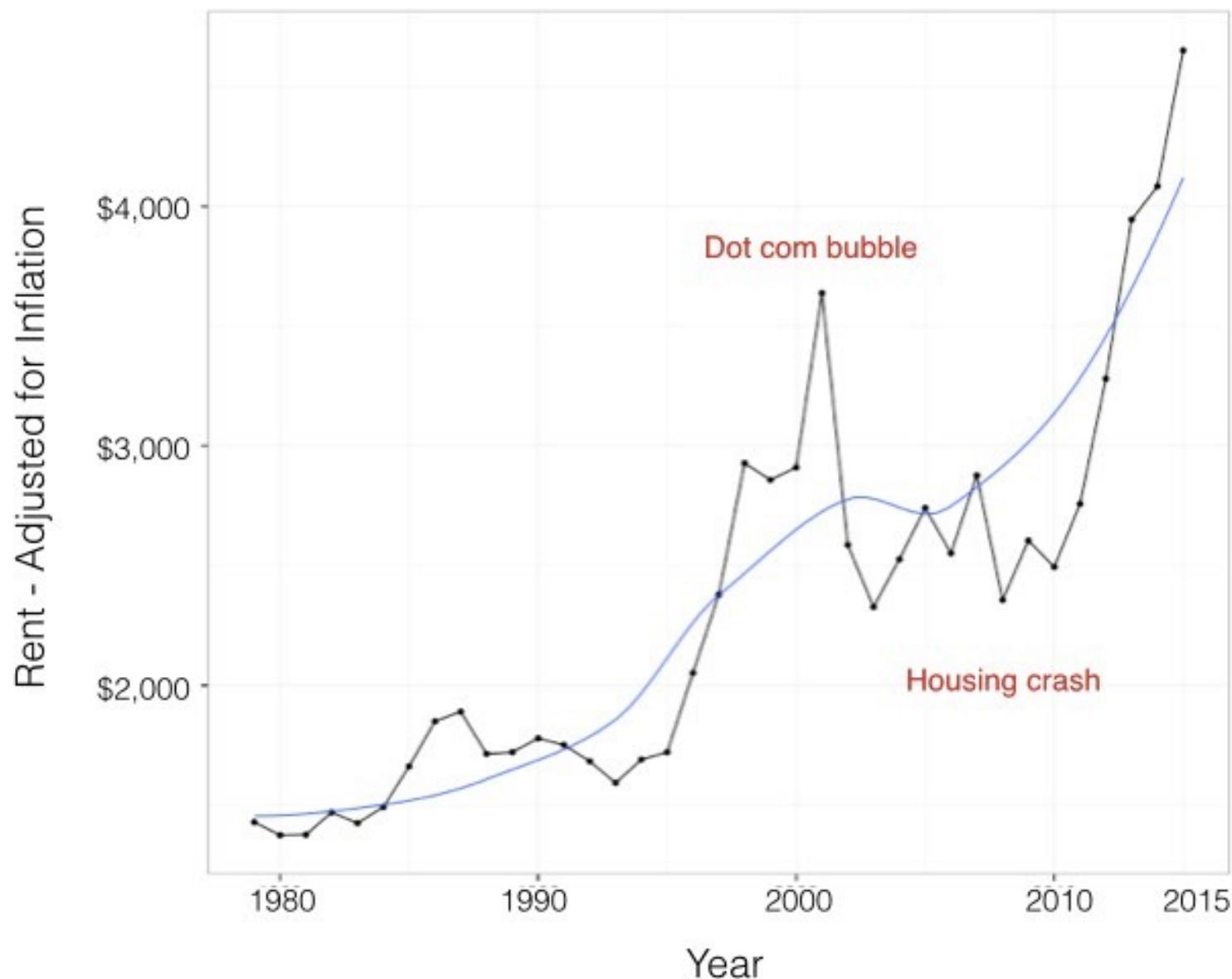
Lending Among Banks Freezes

BY CARRICK MOLLENKAMP,
MARK WHITEHOUSE
AND NEIL SHAH

Banks abruptly stopped lending to each other or charged exorbitantly high rates Tuesday, threatening to spread the troubles of American International Group Inc. and Lehman Brothers Holdings Inc. to a broad range of financial institutions and the global economy.

The breakdown came despite efforts by central bankers to keep money flowing. Central banks in the U.S., Europe and Japan pumped tens of billions of dollars each into the banking system. The Federal Reserve, while declining to lower its benchmark interest rate at a regular meeting Tuesday, said it will "act as needed" to combat ills including tight credit and the still-declining housing market.

Median Monthly Rent Price of 2BD Rental in SF



a lot has happened

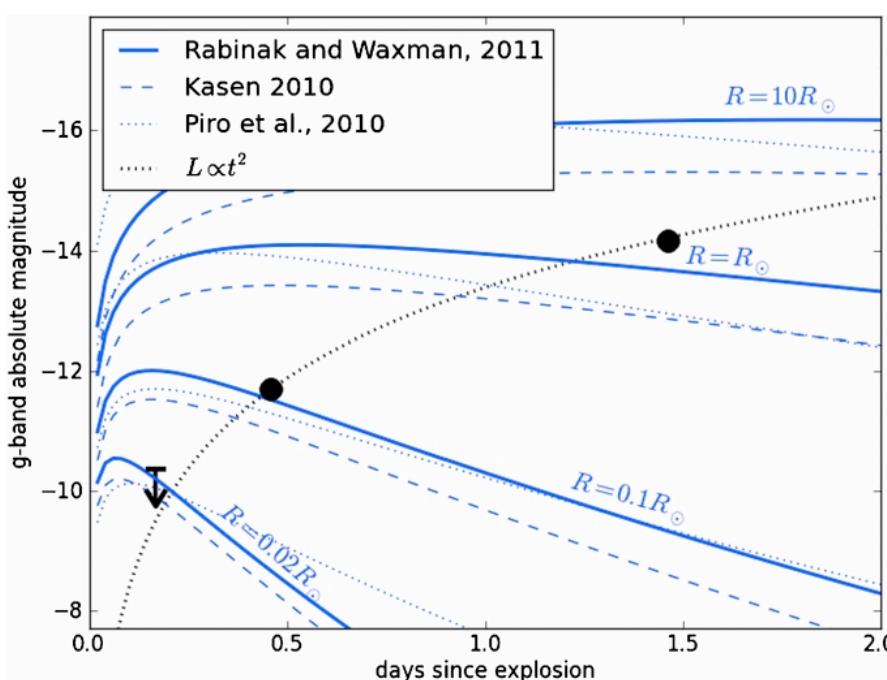
it's time to get
specific

it's time to get
quantitative

1. Young Supernovae

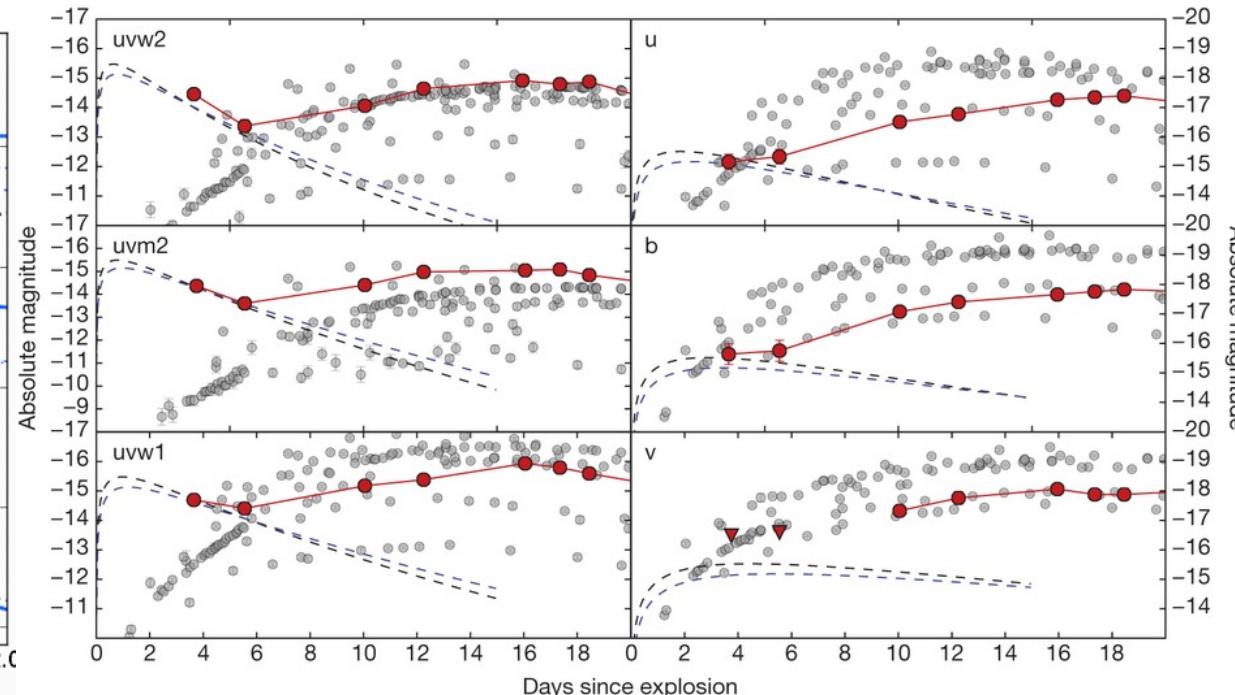
PTF11kly/SN 2011fe (Ia)

Bloom+ 12



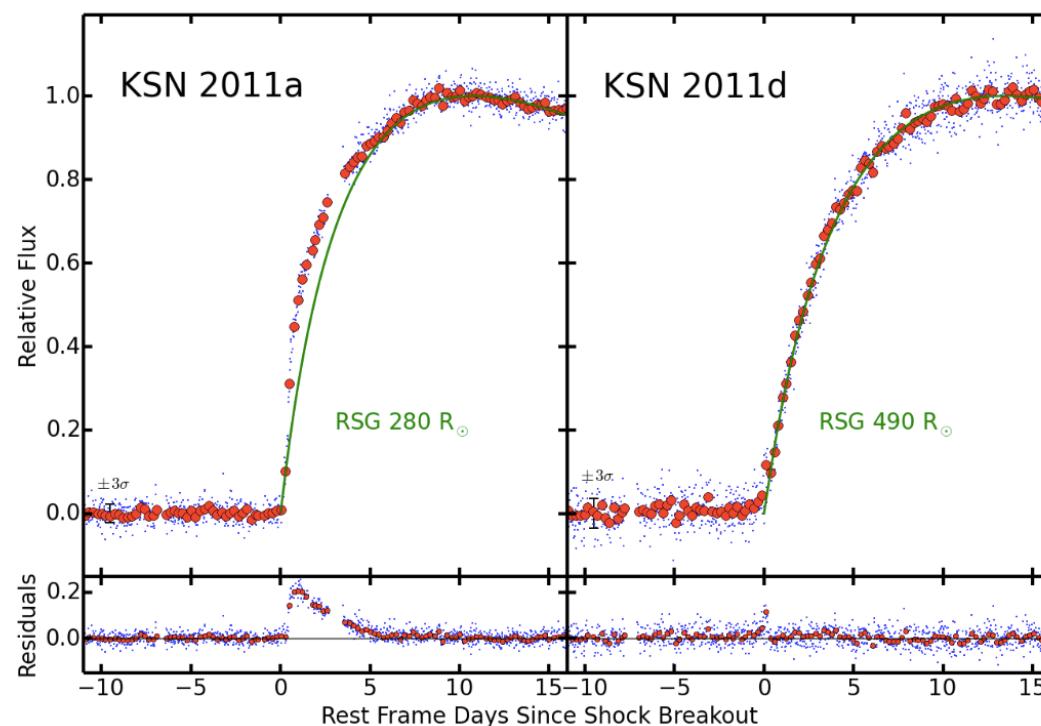
iPTF14atg (Ia)

Cao+ 15



KSN 2011a,d (IIp)

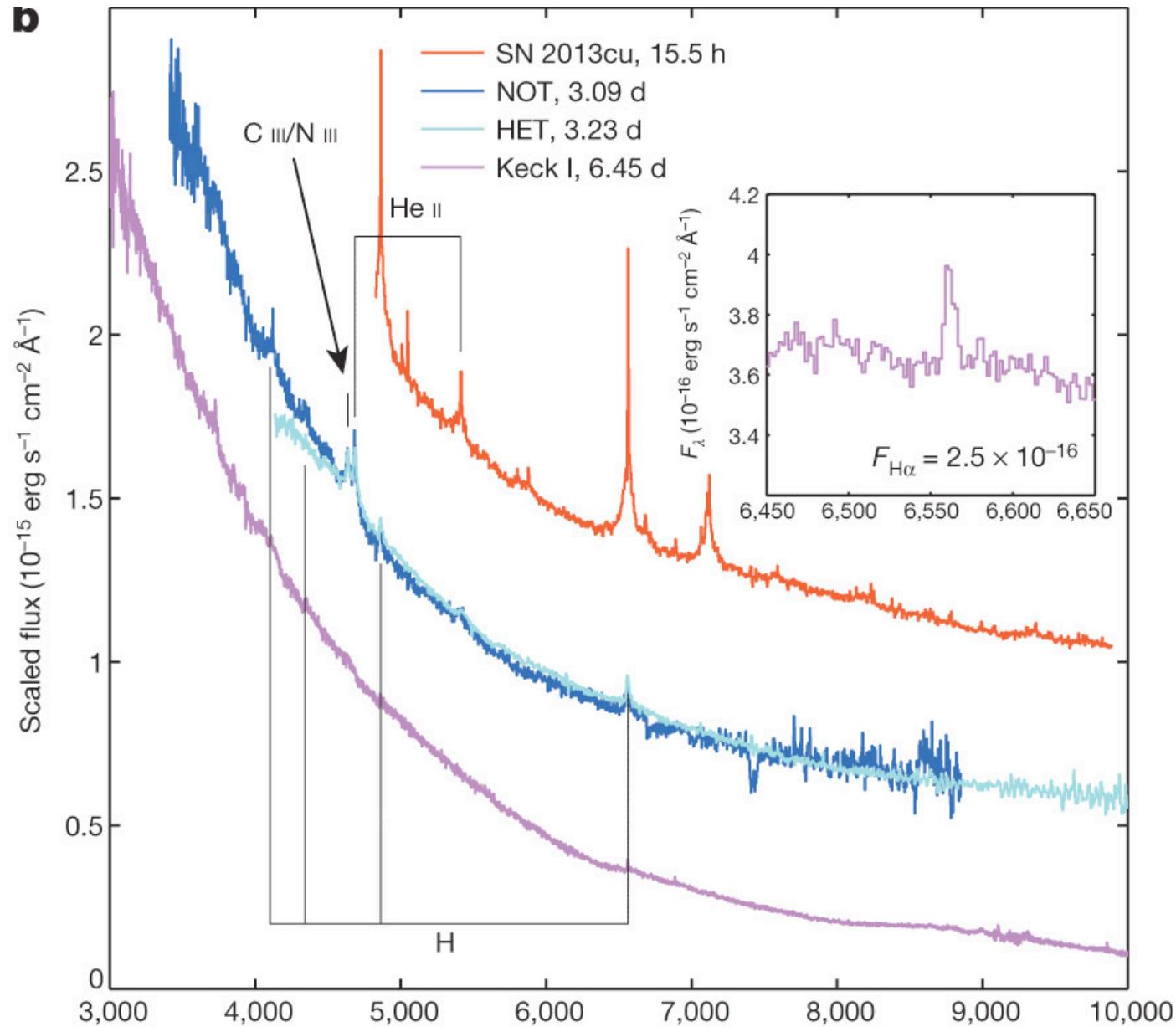
Garnavich+ 16



iPTF13ast/SN2013cu (I Ib)

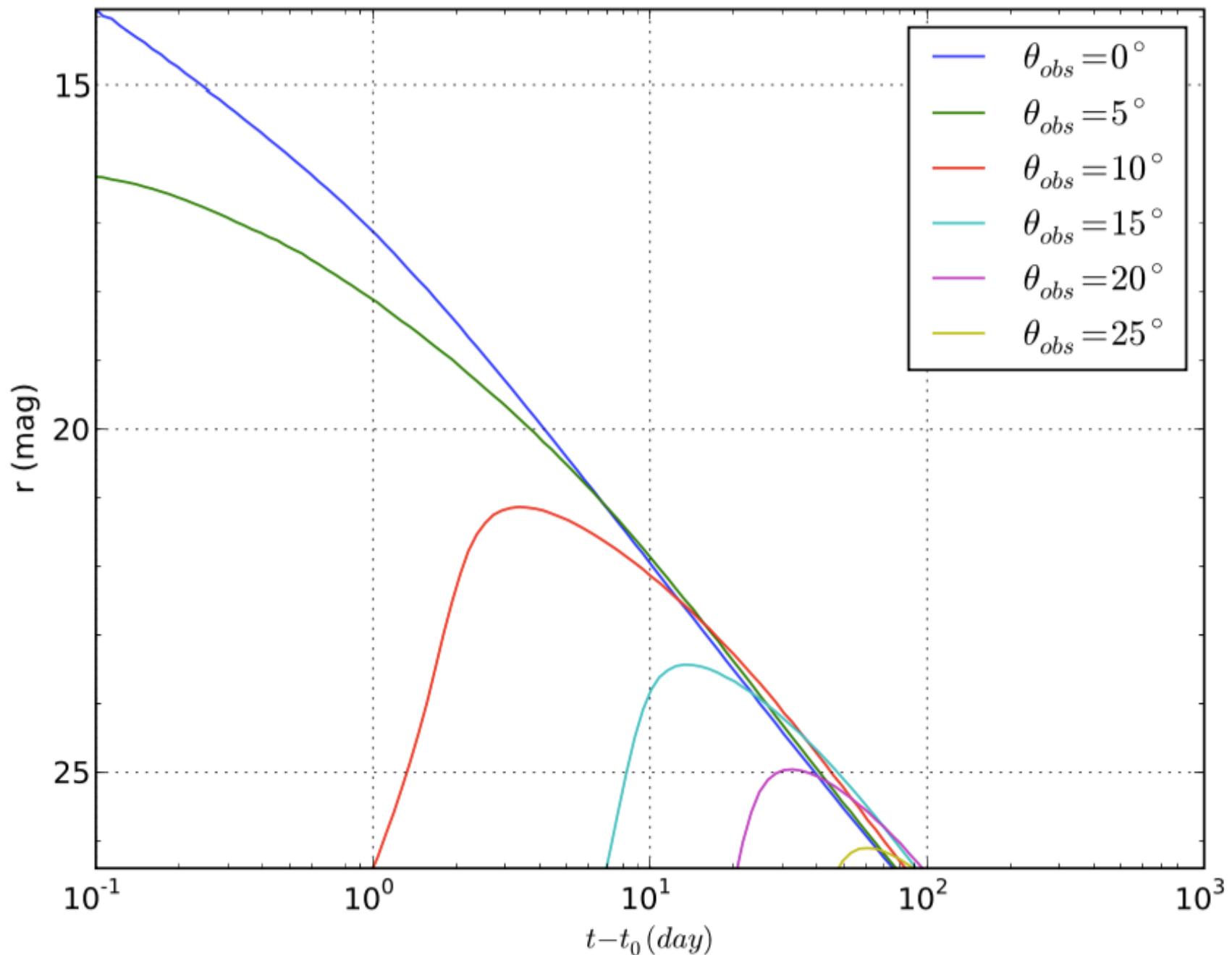
Gal-Yam+ 2014

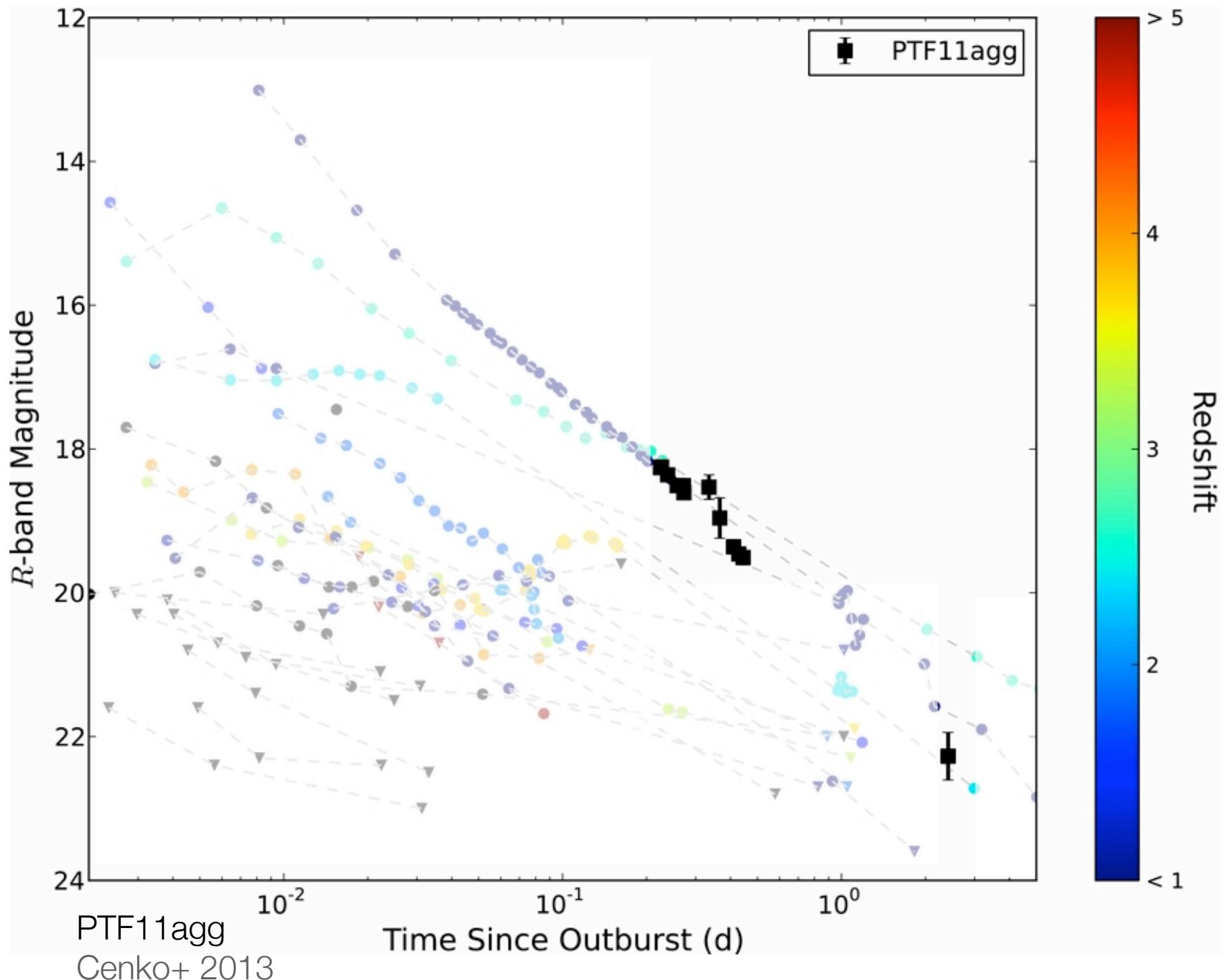
b



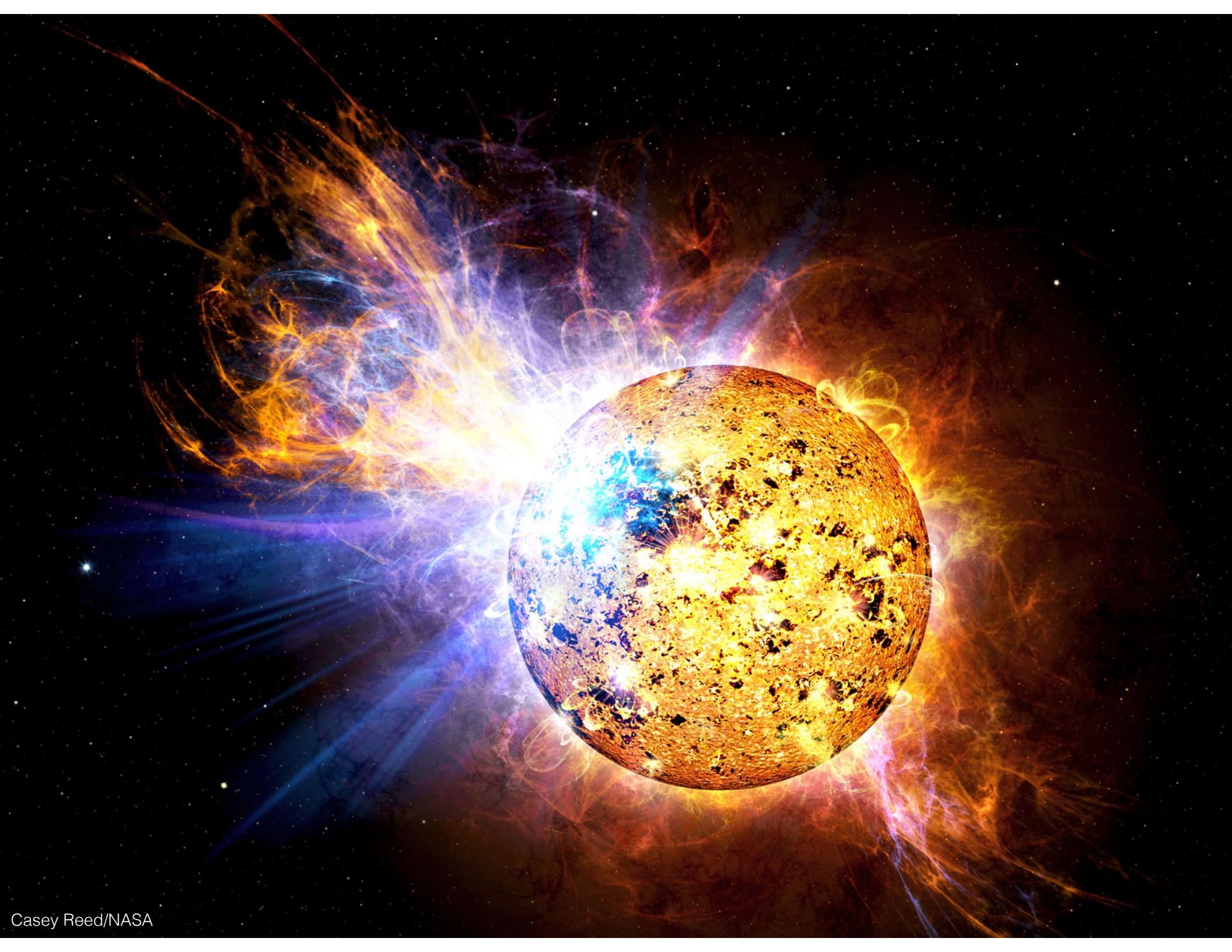
2. Gamma-Ray Bursts

GRB afterglows $\theta_j = 4^\circ$



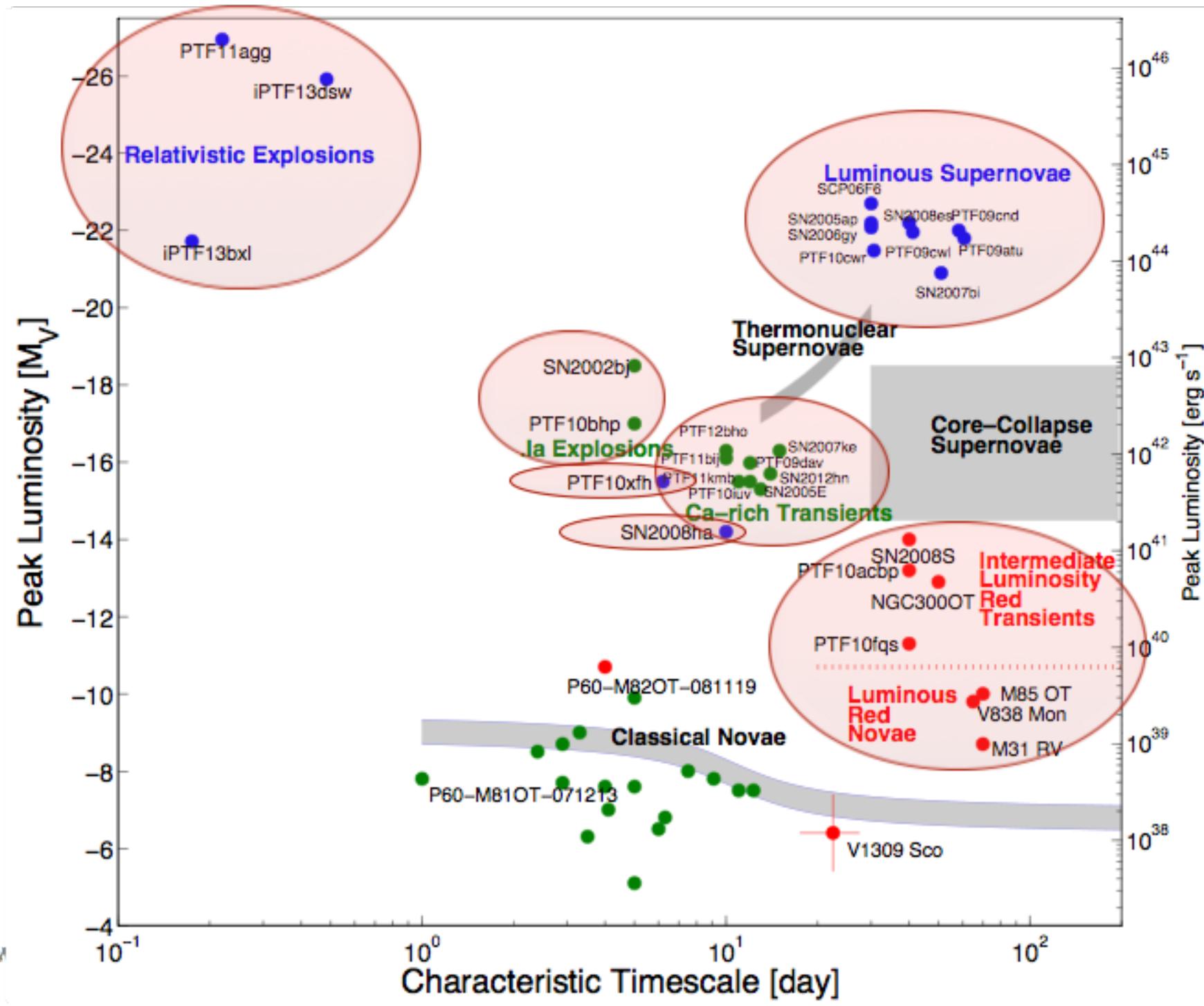


3. Stellar flares



Casey Reed/NASA

and, okay:
4. Unknowns



Updated from Kasliwal 2011 (PhDT)

1. CADENCE

1. CADENCE

2. CADENCE

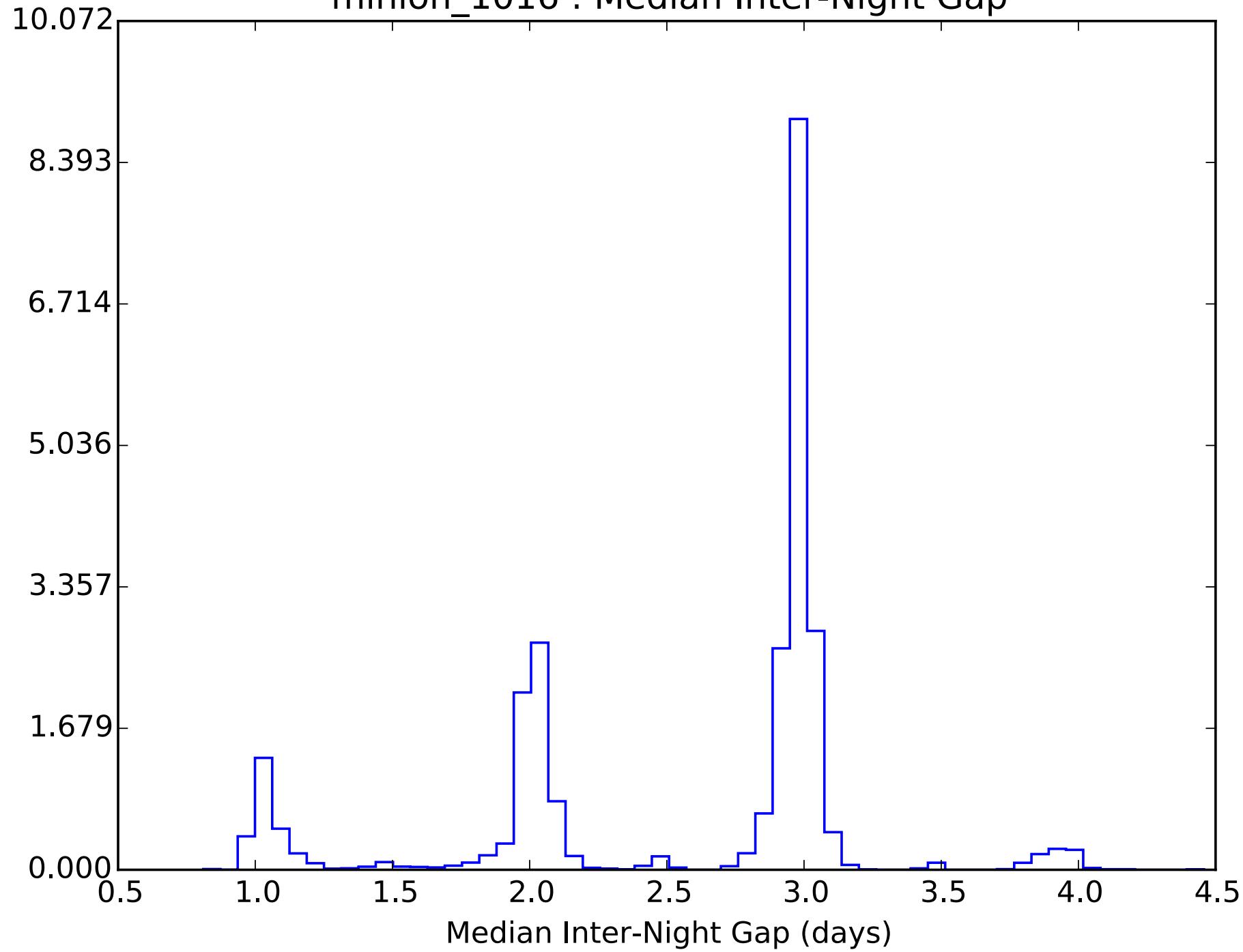
1. CADENCE

2. CADENCE

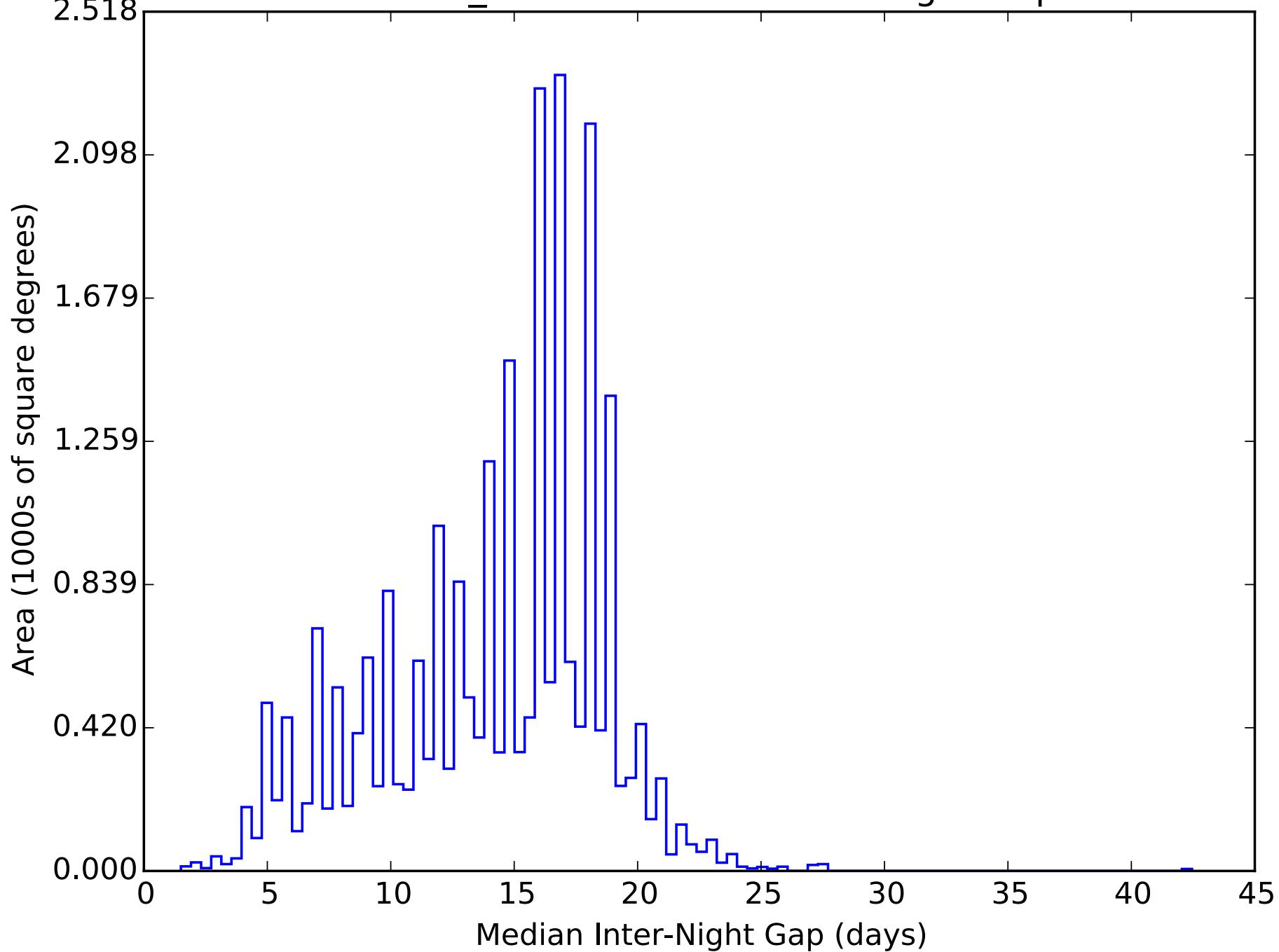
3. CADENCE

minion_1016 : Median Inter-Night Gap

Area (1000s of square degrees)



minion_1016 r: Median Inter-Night Gap



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In [18]: transBundle.summaryValues
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```
Out[18]: {'Median': 0.0}
```

So demanding three detections (in any filter) drops us to a 0% median detection rate. Two detections is at 11%

Rolling cadence

**Simulate all the
things!**



Finally:

Brokers and followup

