Now you see it, now you don't

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Some stars emit radio waves fairly steadily, while some compact neutron stars flash like beacons in the sky. But others brighten and dim erratically, without any discernible pattern to the outbursts, according to Maura McLaughlin in research published by Nature last week.

The team have discovered a new class of astrophysical objects, which they call rotating radio transients (RRATs). These emit short bursts of radio waves, lasting just 2 to 30 milliseconds, interspersed with 'dark' spells of several minutes to hours. The researchers say that the radio signals from these objects are typically detectable for less than a second in total each day.

The researchers have discovered eleven such objects in a four-year survey conducted to look for transient radio sources of this kind. Although the bright events are so short, they nevertheless show signs of periodicity for ten of the objects, repeating in cycles of 0.4 to 7 seconds. In other words, the objects are rather like lighthouses that are plagued by frequent, random and prolonged power cuts.

What causes these shutdowns? McLaughlin and colleagues aren't sure what RRATs are yet, beyond supposing that they are a kind of rotating neutron star. But they seem to be plentiful: the researchers estimate that there should be many more of them in our Galaxy than there are regularly pulsing neutron stars. It's just that, because they are 'dark' most of the time, they can only be seen by looking hard and long.

Source: Nature