

Exmoor – Europe’s first International Dark Sky Reserve

On 2011 October 9 Exmoor National Park in the southwest of England was designated as Europe’s first International Dark Sky Reserve by the International Dark Skies Association. This is a huge achievement, and follows three years of work by park authorities, local astronomers, lighting engineers and the resident community. Exmoor Dark Sky Reserve follows in the footsteps of Galloway Forest Dark Sky Park, set up in 2009, and Sark Dark Sky Island, established in January 2011.



Emma Dennis, landscape officer for Exmoor National Park Authority and the driving force behind the creation of the Dark Sky Reserve, began work on the project in 2009 as part of the International Year of Astronomy’s Dark Sky Awareness Cornerstone objective. It had long been known that the southwest of England had exceptional dark skies, and a relatively favourable climate for astronomy.

The designation followed months of painstaking dark sky surveys, some of the most detailed that have been carried out in the UK, as well as the creation of a strict set of lighting controls governing all new developments within the national park.

Dr Nigel Stone, Chief Executive of Exmoor

National Park, said: ‘We are delighted that the importance of dark skies, one of Exmoor National Park’s special qualities, has received this international recognition and we would like to thank all those who have helped in achieving this International Dark Sky Reserve award. We look forward to welcoming many more visitors in the future to enjoy the starlit skies at night as well as the spectacular scenery Exmoor has to offer during the day.’ [example below – Ed.]

The designation was sought for two main reasons: 1) the park authority, working with the Campaign to Protect Rural England, recognises and values tranquillity as a key asset, and a dark sky is part of that mission; and 2) there is a real opportunity for Exmoor National Park to ex-

tend its tourist season throughout the winter months by using the dark skies to attract astrotourists, something already being done by Sark and Galloway Forest Park.

Exmoor’s designation now means that the UK has a ‘full-house’ of IDA designations – the only country in the world to have this – in that it has a Dark Sky Park (Galloway Forest Park), a Dark Sky Community (Sark) and a Dark Sky Reserve (Exmoor). The differences between these designations are important. The Dark Sky Park designation is intended for parks with little or no human population (the model being US National Parks). Dark Sky Community status is aimed at communities – towns, cities, islands – that want to preserve their night sky. And Dark Sky Reserve status, while meant for large parks also, allows communities to exist within the Reserve, surrounding a dark sky core which is strictly protected, while public engagement and awareness-raising of the issues of light pollution spreads from that core to the surrounding reserve.

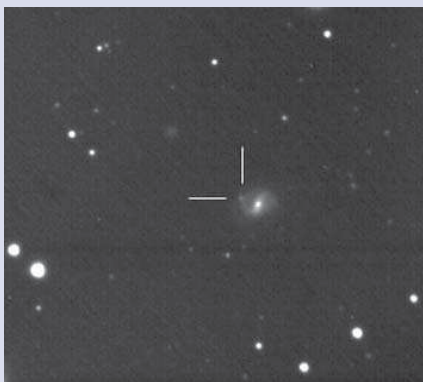
Exmoor National Park Authority was supported in its efforts by a grant from the British Astronomical Association that enabled it to engage the services of a qualified lighting engineer to write its lighting management plan.

Steve Owens

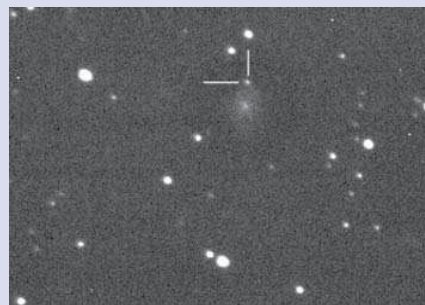


Deep Sky Section

More supernova discoveries for BAA members



Both Tom Boles and Ron Arbour have made new supernova discoveries. Tom has made 3



further discoveries bringing his total to 145, while Ron has made 1 new discovery bringing his total to 26. Details are given below.

Tom Boles

2011 July 31.071, galaxy MCG +05-04-59. Mag 18.0. RA 1h 26m 34.69s, Dec +31° 37' 3.6". (far left). This type II supernova has been given the interim designation J012634+3137036.

2011 Sep 30.113, galaxy MCG +13-05-36. Mag 18.0. RA 7h 6m 28.29s, Dec +77° 52' 31.8". (left). This type Ia supernova has been designated 2011gn.

2011 Sep 30.146, galaxy MCG +07-15-2. Mag ▶



Meteor Section

Draconid meteor outburst successfully observed

The Draconid meteors, which were widely predicted to produce a short-duration outburst on the evening of 2011 October 8 (see the October *Journal*, p.256) did indeed perform much as expected. However, for many UK observers trying to get a glimpse of the display it was a rather frustrating evening, and bright moonlight coupled with the faintness of the majority of the meteors meant that the shower was not as visually impressive as many had hoped.

The considerable advance publicity surrounding the shower, coupled with the fact that the peak was predicted for a Saturday evening, meant that a large number of observers right across Europe (and beyond) were out that night. Indeed, it has turned out to be one of the most successful international observing campaigns ever mounted by the BAA Meteor Section, with data being received from all over Europe and farther afield – from Saudi Arabia to Canada. From the observations received by the Section to date a clear picture of shower activity is emerging.

Overall, the timing of the observed Draconid outburst was a triumph for the theoreticians who, using the dust trail model, had predicted which of the older dust trails laid down by the parent comet 21P/Giacobini-Zinner the Earth would intersect near to the nodal crossing point. There was a fairly narrow range of predictions for the expected time of peak activity,¹ due to the 1900 and 1907 dust trails, on October 8: 19:52 UT (William Cooke & Danielle Moser, NASA MSFC); 20:01 UT (J r mie Vaubaillon, IMCCE, Paris); 20:12 UT (Esko Lyytinen, Helsinki, Finland); 20:13 UT (Mikhail Maslov, Novosibirsk, Russia), and 20:36 UT (Mikiya Sato, National Astronomical Observatory of Japan). Estimates of the peak Zenithal Hourly Rate (ZHR) – the number of meteors that would be seen by an observer in a dark sky with the radiant overhead – were considerably more diverse, ranging from only 40–50 m/h to 500–750 m/h.

Visually, the Draconid ZHR was generally low (<50 m/h) until around 18:30 UT on Oct 8, when a noticeable increase in activity occurred. After 19:30 UT there was a sharp rise in rates, peaking between 20:05 and 20:15 UT. Thereafter there was a rapid decline, with Draconid rates returning to a generally low level after 21:30 UT. Preliminary analyses indicate a peak equivalent ZHR approaching 350 m/h between 20:05 and 20:15 UT, although correction factors are rather high due to the effect of the bright moonlight.

Conditions over much of the UK were very poor on the evening of Oct 8, but it is most encouraging that so many individuals and local society groups battled the elements in the hope of getting a view of the shower. The Director is extremely grateful to all those who contacted him with tales of great efforts thwarted by thick cloud cover and rain that night. A few observers were rewarded for their persistence, as a

short period of partially clear weather enabled observers in parts of Sussex, Hampshire, Dorset, Wiltshire, Berkshire, Oxfordshire and Gloucestershire to glimpse the shower between about 19:00 and 21:00 UT. By a fortunate circumstance this was coincident with the main peak in shower activity.

In West Sussex, Graham Boots reports that members of the Worthing AS had some success, in spite of significant amounts of cloud. Alex Vincent recorded four Draconids from his garden in central Worthing between 19:10 and 19:30 UT, and from the society's observatory site in Goring-by-Sea, five Draconids were seen between 19:30 and 20:00 UT when thick cloud curtailed observations.

Also in Sussex, Nick Quinn reports that his group saw 11 meteors from Steyning in extremely cloudy conditions. Further west, near Romsey in Hampshire through gaps in the cloud, Alastair Acheson spotted 21 meteors between 20:00 and 20:50. Again through gaps in

fast-moving cloud between 20:00 and 20:20 UT, Bob Mizon spotted four Draconids from Colehill, Dorset.

Taking advantage of rather better conditions, Richard Fleet, from near Pewsey in Wiltshire, saw 22 Draconids in a 43-minute watch beginning shortly after 20:00 UT; most were 2nd or 3rd magnitude and his best spell was three Draconids in a minute at 20:11. Tim Haymes of Maidenhead AS, observing near Reading, saw 10 Draconids in 30 minutes between 20:00 and 20:30 UT; all but one were 2nd or 3rd magnitude. At Upper Basildon in West Berkshire, Michael McNeil took advantage of breaks in the cloud to spot five Draconids between 20:10 and 20:25 UT. From Long Wittenham, South Oxfordshire, David Smith observed three Draconids between 19:30 and 20:00 UT, and six between 20:00 and 20:15. He reports that essentially he was looking through a hole in the clouds centred more or

► More BAA supernova discoveries – continued

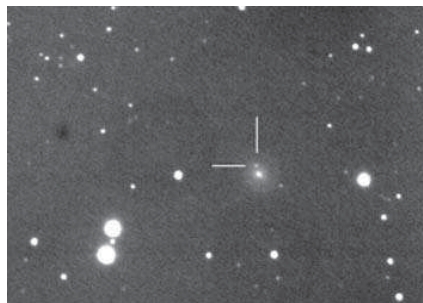
18.1. RA 6h 55m 51.00s, Dec +40° 41' 46.6". (*right*). This type II supernova has been designated 2011go. Full details were issued on TA circular E2772.

Tom's discovery images (0.35m Schmidt-Cassegrain telescope) are shown here, all imaged from his observatory in Coddham, Suffolk.

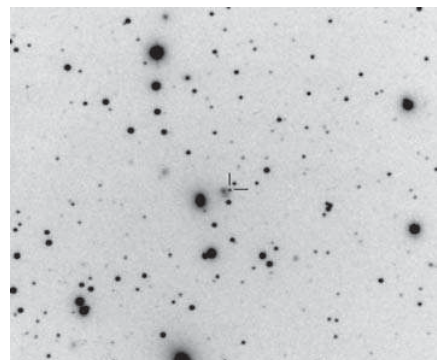
Ron Arbour

2011 Sep 17.962, galaxy PGC 2159464. Mag 17.6. RA 18h 39m 53.93s, Dec +40° 1' 43.7". (*far right*). This type IIP supernova has been designated 2011fy. Full details were issued on TA circular E2767.

An image of Ron's latest supernova obtained by him a few days after discovery using his



0.35m Schmidt-Cassegrain discovery telescope is shown on the right.



Stewart L. Moore, Director