

Southern African Fireball Observations 2011–2012

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Catalogue of Recent Sightings
This article continues the sequential numbering of reported fireball sightings from southern Africa, and covers fireballs observed during 2011–2012. By definition, a fireball is any meteor event with brightness equal to or greater than visual magnitude -3. The following events were reported to the author and details are reproduced as given by the observer. All times were converted to UT, and all coordinates are for epoch J2000.0.

Event 232 – 2011 May 6 – Waterberg, Limpopo

Observed by Simon Walsh and others at 22h31. Passed through zenith in direction SSE, $m_v = -5$ when first seen, fragmented into about a dozen orange fragments near Antares. Duration was said to be about 10 seconds for a path length of ~20 degrees. At 22h34 heard distant rumbling like thunder or blasting at a quarry. Observer's location was $24^{\circ}12'16.3''$ S, $28^{\circ}19'38''$ E.

Event 233 – 2011 July 20 – Estcourt, KZN

Observed by Louis Piovesan at 16h28. Brightness was a little brighter than Venus (not visible at the time) so m_v perhaps about -5. The fireball was first seen near Arcturus, and passed through Crux before disappearing behind trees and a neighbouring house. Colour was yellow, with a distinct yellow tail, fragmenting at several points along its path. No sound was heard.

Event 234 – 2011 August 18 – Makhado, Limpopo

Observed by Sarah Coronios at about 16h25. $m_v =$ about -7. She had just finished feeding horses and was walking home, looking northwards when she spotted it out of the corner of her eye, about 40° above the eastern horizon, moving northwards and burnt out 15° above the northern horizon. The object fragmented during its flight, but left no train and no sound was heard.

Event 235 – 2011 August 19 – Limpopo, and Tuli Wilderness, Botswana

Observed by Andrew Morgan at Tuli Wilderness at location $22^{\circ}13'51.0''$ S, $28^{\circ}56' 56.4''$ E. Time was about 19h07. Duration 4-5 seconds. Colour initially blue-green, becoming white. Andrew, who has experience as a game ranger with the stars, described 'the meteor fell directly in line with beta Centauri and traveled through beta Crucis in a SW direction'. The fireball disappeared below nearby mountains, followed by a blue-turquoise flash which lit up the sky in the vicinity. Approximately 30 seconds later Andrew heard a sonic boom. Lourens van Niekerk said he and several others witnessed a very bright fireball passing overheard from east to west just after 19h00. They live in Limpopo, close to the Botswana border between the Saambou Bridge and Zanzibar border posts. It appeared to be traveling very low.

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Event 236 – 2011 August 23 – Seapoint W Cape

Observed by Peter Herbert at 20h15. Colour said to be bright blue with very thin orange tail. Looking from Seapoint towards Cape Town, direction from right to left (roughly south west toward north east) at about 45° altitude.

Event 237 – 2011 August 27 – Barrydale, S Cape

Observed by Laurence Matthews at 04h00. Moving from just east of south to just west of north, the meteor appeared about 2.5-3 magnitudes brighter than say Sirius, m_v about -4. It had a white centre with blue outer and an orange tail, and the path stretched across about 90° of the sky. It took several seconds to traverse the sky, before disappearing over a hill towards the north.

Event 238 – 2011 September 23 – Observatory, Gauteng

Observed by Constant Volschenk at 17h13, while at Old Republic Observatory. Direction was from south to north through Sagittarius. He was facing

north and the object was seen directly overhead, burning out at an altitude of 55°. Duration was 2.5-3 seconds. Colour was bright white. No persistent train or fragmentation was noted.

Event 239 – 2011 October 21 – Cape Town, W Cape

Observed independently by Jessy de Kock and Brandon Talbot. Both were driving when they observed the fireball. Brandon gave the time as just after 9 15 pm (SAST) because he left at that time and he saw the fireball while driving. He was driving on the M3 from the Tokai onramp to the Westlake offramp and the fireball was descending due south over the Muizenberg mountains directly in front of his windscreen. It moved slightly east to west. Brightness definitely more than five times as bright as Venus (which set earlier in the evening), so m_v probably about -6 or brighter. Colours described were pale green and blue (Brandon called it cyan). Long tail, same colour as the fire-

ball. Duration about one second or a little longer. There was no sign of disintegration before the fireball disappeared below the mountains. Jessy was driving south on Campground Road, Rondebosch and gave the time as between 19h15 and 19h30. Brighter than Venus, m_v probably brighter than -5. Duration 5-6 seconds. She reported seeing orange, white and red, and at some point green colours. There was no sign of disintegration and the fireball faded out at the end of its path. From a sketch Jessy provided I determined the start point at azimuth about 200°, altitude 30°, passing from left to right, ie east to west, and descending to azimuth about 240°, altitude 20°. This corresponds to start and end points (RA/Dec) of approximately 16h30, -72° to 16h36, -35°, a path from near alpha Triangulum Austrini to epsilon Scorpis, and an arc of travel of about 37°. Plotting the apparent path and tracing it backwards does not coincide with any known meteor radiants active at

this time of year, and thus I conclude the event was a sporadic fireball. Due to the convenient time and brightness of the event, I am very surprised to have only received the two reports.

Event 240 – 2012 March 20 – Ashton, W Cape and Zeekoegat, Riversdale, Cape

Observed independently by Bennie Coetzee and Wim Filmalter. Bennie reported at about 21h00 while driving from Ashton to Swellendam, about 2.1 km from the T-junction on the R60 (just past Zolani). Duration was about 1 second and the object traveled from alt/az 25°/158° to 17°/186° [Bennie returned to the scene afterwards to measure the angles more accurately] where it disappeared below a distant hill. This gives a path from just below Triangulum Australis, directly towards Achernar, which was probably below the line of hills Bennie refers to and hence not visible at the time. The body of the fireball was green and the tail was white. Wim

reported at about 20h50. Brightness about four times that of Venus, mv about -6. The fireball was seen in direction azimuth 165°, where the altitude was about 7°, path length at least 10°, descending left to right at about 45° to the horizon. Duration not more than three seconds. Colour was very bright green, with a trail of reddish sparks. Based on the details provided by both observers the event was most probably a fireball from the Virginid complex of radiants, known to produce the odd very bright meteor at this time of year.

Event 241 – 2012 May 4 – Benoni, Gauteng

Observed by Peter le Roux at 17h08, standing outside during a Scout meeting. Much brighter than Venus, so mv probably -5 or brighter. Colour was white with some orange noted towards the end of path as it started to disintegrate. Duration 3 seconds. The azimuth and altitudes of start and end points were 320°, 30° to 350°, 20°. No persistent trail.

Event 242 – 2012 September 28 – Cape Town, W Cape

Observed by three individuals who reported the sighting somewhere between 18h07 and 18h15. Duration about 4 seconds. Colour white tinged with red, bright green trail. Direction approx north towards west. Jacques Cronje reported seeing the fireball to NW of Cape Town, moving from north to westwards, with a bright greenish yellow colour, with bright greenish tail. Burnt out abruptly a short distance above the horizon. Henry Atkinson reported seeing the fireball from Oranjezicht looking north towards Table Bay at 18h07, bright white light into greenish and pinkish hues around the edges and so appearing to be multi-coloured, traversing perhaps 120° during 4 seconds. Its path was nearly horizontal, in a direction from east to west and disappearing in the direction of the Atlantic Ocean, disappearing behind Signal Hill. No sound was heard. Andrew Freeborn reported 'saw what I suppose was a spectacular meteor over

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Blouberg. The sighting occurred at about 18h15, as I was driving North on Marine Drive. Shortly before passing Dolphin Beach, I noticed a very bright fireball streaking across the sky from East to West. The fireball had a bright head and visible flames for a tail.

I perceived it as being at a relatively low altitude and it seemed to pass through some clouds before burning out over the ocean'.

Event 243 – 2012 December 9 – Cederberg, W Cape

Observed by Cliff Turk at

00h53 during a watch on the Velid meteor shower. $m_v = -3$. Colour white, medium speed, duration 0.5 seconds. Based on its observed path Cliff identified the fireball himself as a Geminid.



The Daytime Bolide of 12 March 2013

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In the early afternoon of 12 May 2013, a meteoroid, probably weighing several hundred kilograms, entered the Earth's atmosphere over the Western Cape. The resulting fireball was widely seen despite its passage in broad daylight. Based on a few eye witness accounts, Tim Cooper attempted to reconstruct the event.

Following on from other recent bright meteor events, such as the daytime Chelyabinsk bolide and consequent meteorite over Russia on 15 February 2013, South Africa witnessed its own very bright bolide (the correct term for a very bright meteor seen to

explode) just after mid-day on 12 March 2013. This too was a daytime event, and was widely observed from the Cape Town metropole, and the western Cape as far north as Lutzville. This latest event was the brightest since the very bright bolide which crossed the country around 23h00 on 21 November 2009 (see MNASSA Vol. 70, June 2011 pp 109-110). There are also similarities between this event and that of 21 July 2002 (see MNASSA Vol. 62, August 2003, pp 156-157), which was also seen during daylight, including by an experienced amateur astronomer who estimated the brightness as magnitude -10, and by two

airline pilots. That bolide resulted in a meteorite fall near the village of Thuathe in Lesotho, with over one thousand fragments being found with a combined mass of over 30 kg, the largest weighing 2.4 kg.

The 12 March 2013 event was widely observed over the Western Cape, reported on Facebook, Twitter, and various Internet sites, and reported by at least two radio stations. The best set of reports, enabling the author to reproduce at least a probable path, were those reported to the SAAO website, and provided to the author courtesy of Nicola Lauring. These consisted of nine