From the radar imagery, we are more likely to be looking at squall damage in this case, probably occurring at approximately 2330 GMT (see Pike 1998, Fig. 8) when Cell 2, which later produced the Selsey tornado, was passing close by to the north, across central Isle of Wight.

Perhaps more importantly, Paice's interesting article raises the question of whether we should be using the TORRO or Fujita scales (which both estimate tornadic intensities and probable wind strengths from the nature of reported damage) for any particular reason. I used the TORRO scale because, to my knowledge, the World Meteorological Organization have not yet adopted the coarse Fujita scale as standard for international use. Tornadoes that are classed by Fujita as "violent" in the USA (winds exceeding 207 mph (180 kn)) are so rare as to be counted on the fingers of one hand in the UK's recent history (see Rowe 1985) at TORRO Force T7 to T8 (the scales do not convert precisely). It would be useful if some genuine international compromise which incorporates both scales could be reached and advocated for general use.

References

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A bright parhelion

A picture of a bright parhelion, reflected on the surface of the River Cole, appeared on the back cover of the May 1998 issue of *Weather*. The contrast between the intensities of parhelion and background is striking. In the caption to the picture it is suggested that the polarisation difference between sky and parhelion contributed to this intensity contrast.

Although the argument is in principle right, it does not work in practice. The degrees of polarisation are too small. Even for a pure blue Rayleigh sky the polarisation at the parhelion's position amounts to only 8 per cent, while the parhelion's overall polarisation is less than 4 per cent (Können and Tinbergen 1991; Können *et al.* 1994). Despite the fact that the polarisation directions of sky and parhelion are almost perpendicular to each other, these degrees of polarisation are too low to produce a perceptible increase of contrast.

In fact, the situation is even more unfavourable than the percentages 4 and 8 suggest. First, light scattered by the cirrus cloud that causes the parhelion is less polarised than Rayleigh scattering and is often brighter. The latter is clearly the case in the picture, since the sky near the parhelion is white rather than blue. This implies a degree of skylight polarisation much lower than 8 per cent. Second, the birefringence of ice results in a redistribution of the polarisation along the parhelion with respect to the isotropic situation, leading to strong polarisation in a small region at the parhelion's inner (red) limb and an absence of polarisation at the remainder of the parhelion. For quantitative measurements of this effect, see Können and Tinbergen (1991), Fig. 18, and Können *et al.* (1994), Fig. 6. Effectively, this polarisation structure leads to a shift of 0.1° in the position of a parhelion when viewed through a rotating polariser, but not to a changing intensity. So even if the water suface would act as a perfect polariser, there would be no perceptible enhancement in contrast of the reflected image of the parhelion.

References

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Storm Dunlop (Photographs Editor) replies:

I am grateful to Dr Können for pointing out my error and, in particular, for mentioning the marked polarisation of the inner portion of a parhelion. This effect is certainly not well known. It is a pity that the direct image of the parhelion was too indistinct to be reproduced. That image was overexposed and saturated, thereby suffering a loss of contrast. The reflected image, being fainter, more correctly reproduced the actual contrast between parhelion and sky.