ratio between 300 and 500. The shock seems weaker in 1983 than in 1982. The emission from the shock appears near phase $\Phi = 0.14$ in 1983 while the emission was already important at phase -0.05 in 1982, i.e., 63 days before the phase +0.14. Another explanation of this delay is that the shock has been created lower within the photosphere or also that the opacity of the latter shock was higher in 1983. The relative depth of absorption lines was lower in 1983 than in 1982. It is possible, perhaps, to understand this phenomenon by a lower luminosity of Mira in 1982 than in 1983. Finally, it is interesting to see that the three absorptions at approximately 6561.6 Å, 6562.0 Å and 6562.4 Å within the assumed emission profile at phase +0.14 have again not received a correct explanation. However, the first three profiles of Fig. 3, perhaps without emission, show five small absorptions.

Finally, these observations show that the phase of apparition of the H α emission can be very different from one luminosity period to the next. This phenomenon is perhaps a consequence of the modification of the shock intensity and it may be that there is also a direct correlation between this fact and the slight variation of the period and amplitude (~ 5%) of Mira stars. The 1983 profiles of Fig. 3 give perhaps the sequence of H α emission caused by the shock.

Acknowledgements

We are grateful to Drs. D. Baade and R. Ferlet for their collaboration on the observations.

References

- Baird, S. R., 1982, P.A.S.P. 94, 850.
- Breger, M., 1979, P.A.S.P. 91, 5.
- Dravins, D., Lind, J., Särg, K., 1977, Astronomy and Astrophysics 54, 381 (c).
- Dürbeck, H. W., Seitter, W. C., 1982, *Landolt-Börnstein*, **2**, p. 197, ed. K. Schaifers and H. H. Voigt, Springer-Verlag.

Goldberg, B. A., Walker, G. A. H., 1974, Astronomy and Astrophysics 32, 355.

- Havlen, R. J., 1970, ESO Annual Report (d).
- Hutchinson, J. L., Hill, S. J., Lillie, C. F., 1975, *Astronomical Journal* 80, 1044.
- LeContel, J.-M., Morel, P.-J., 1982, Astronomy and Astrophysics 107, 406 (b).
- Preston, G. W., 1962, Astrophysical Journal 136, 866 (a).

Preston, G. W., Paczynski, B., 1964, Astrophysical Journal 140, 181 (f). Wallerstein, G., 1959, Astrophysical Journal 130, 560 (e).

Blizzard at La Silla

W. Bauersachs, ESO

In the beginning of July 1983, an unusual snowstorm somewhat perturbed the life on La Silla. Here are the records:

Thursday, July 7, 1983: bad weather with symptoms of a development to the worse.

Friday, July 8, 1983: snow-storm, power-failure, evacuation of the mountain, 30 trapped.

Saturday, July 9, 1983: storm continues until midnight.

Sunday, July 10, 1983: bright weather, snow-sweeping, repairs.

Monday, July 11, 1983: half of the crew returns, preparations of equipment.

Tuesday, July 12, 1983: return to full work.

Things like that always happen on Friday, a fact confirmed by long experience. Just when the majority of the people are anxious to leave the mountain and to see their families.

You imagine what it then means when the road is blocked by mud and landslides! This time the event was quite extraordinary, otherwise it would not be worthwile to write its story. We do have snow on La Silla, sometimes. We also do have strong winds, even very strong ones, from time to time. But both extremes together? May be some elder ones remember.

The symptoms were unequivocal: a high dark cloud stratification, a second one lower than the Observatory, squalls whip the fog upwards the valleys, temperature decreases. Fog envelopes first the ware-house, then the work-shops, the hotel and the dormitories and eventually the highest top with the 3.6 m telescope. Clouds rush from the north-east over the La Silla ridge. It is already rather uncomfortable outside. Rain turns to snow in the evening hours. This was on Thursday.

Next morning a little snow on the roads, vehicles are stuck, drivers are scratching ice from the panes. However, they do not get very far. But nobody is really apprehensive as yet. This will start only one hour later. Wind speed increases, snow fall is so intensive that the visibility is only a few meters. In a few places feverish activity develops in spite and because of the nasty weather: snow chains are prepared for the vehicles, equipment is covered with plastic foils for water protection, a car goes to Pelícano to inspect the road conditions, the porter there reports heavy rain fall.

Shall we now send the people down to La Serena? What becomes of the air-plane passengers? Who remains on the mountain? Lots of other questions! Here the decisions: the bus leaves at 11 o'clock taking also the air passengers to La Serena, from there they shall continue by ground transport, only a small emergency group of a dozen persons shall stay.

Suddenly the electric power supply of the whole Observatory fails. There is no possibility to locate the failure, a short circuit somewhere. We know only it is not in the new high tension line, but the rest is dead. The snow-storm prevents the access to the switching stations, so there is no means to isolate the defect. The snow-plough shall open a way! Sorry, it is since a long time busy on the road to Pelícano, far away.

From now on the characteristic events will be recorded as episodes, not quite in chronological order, but characteristic.

Shivering and soaked people gather in the dining-room waiting for transport to the car workshop from where the bus will leave to La Serena. Hundreds of questions! Especially by the visitors, astronomers, Garching staff. Some want to leave, others not. Can I leave my equipment behind? How is the road condition? Why does the telephone not work? How can I come to Santiago? Is there a bus from La Serena?

Wind velocities are registered on Friday morning up to about 120 km/h. But then nothing more. No electricity means no signal transmission and nobody thought of standing out in the horizontally drifting snow holding up an anemometre.

The passenger bus said to be ready to start is lacking gasoline. Also there is no electricity. Some mechanics work



Fig. 1: The observatory seen from the 3.6 m telescope CAT-walk on Monday, July 11 (photo: S. D'Odorico).

hard with icy fingers to make a transfer by hand from an emergency tank.

Power failure does, in general, not only mean no light, no telephone, but also no heating, no cooking, no water. Fortunately, we are prepared in some respect: a gas-stove in the kitchen and plenty of water reserve reaching consumers by gravity. However, congelation of the long line is imminent, but it will not happen, at least not to the main line.

Our snow-plough mounted on the Unimog is requested everywhere. But its work is rather hopeless. Nevertheless the road to Pelícano is passable. Who may be the disguised operator behind the frosted windows?

Fire brigade and technical emergency group people appear dressed in their green overalls and their yellow mackintoshes. This is the occasion to show the fancy outfit. Anyway, they are better protected than those wearing the traditional ESO parka.

Eventually the passengers leave by bus and other vehicles. Only hours later we know all arrived safe in La Serena. But the scheduled return of the bus is out of question for the Panamerican Highway is blocked by land-slides. About thirty are trapped at La Silla.

Kitchen staff reports there is plenty of food.

The mobile 40 kW emergency generator is towed up to the hotel. Muffled up electricians and mechanics are changing the

cable connections with icy fingers and . . . the thing works fine. So there is light in the hotel again, the coffee machine works, the telephone and the radio functions. Some are already enjoying a warm lunch. What was it? Who remembers?

There is no telephone connection to La Serena and also not to Santiago; there, the nets broke down. But we do have our short-wave radio. The porter at the La Serena office reports the arrival of all passengers. Later, we reach also the Guesthouse in Santiago.

Eventually, we can get access to two electrical switching stations in the afternoon. Several tests, several failures, finally a limited success. The lower zone gets power: workshops, warehouse, dormitories and clubhouse and – most important – the heating station. For the rest, there is no hope for today. Please be aware, these few lines mean hard and most uncomfortable work for a couple of men during several hours in the blizzard.

The snow-storm continues, but the situation for the crew at La Silla is again fairly comfortable, as far as they have no outside business. There is even a cinema performance at night. After dinner we can supply also the upper zone dormitories with power from the emergency generator. Everybody is very disciplined by economizing electrical current.



Fig. 2: The 3.6 m telescope photographed from the hotel building (photo: S. D'Odorico).

Some visitors, who may be used to night work, are enjoying a noisy party with bursts of laughter until the early morning hours, although the poor guy next door is deadly tired after the unusual work.

Next day, Saturday, the same picture: storm, snow, frost. The brave crew of the snow-plough continues its rather hopeless battle. The snow limit is at our lower pump-station at about 1,500 m altitude. Our Caterpillar frontloader comes for relief. It can better handle big snow masses. Finally, the roads up to the new 2.2 m telescope are passable for cars with snow chains.

Our 4-wheel-drive vehicles proved to be extremely useful. A shuttle bus runs from the hotel to the telescope zone and to the lower dormitories.

Some visitors undertake expeditions in the snow, some even fight their way up to the 3.6 m telescope in order to save the clock or their computers. But the clock is almost dead, its reserve battery does not last so long. You can take it as a sport, then it may make fun, but if you take it as a duty, the picking snow crystals rushing at 100 km/h into your face are really no fun.

Since the visibility is a bit better today, we discover at least one reason for the power failure. Two wooden poles of the 6,000 V distribution line are broken by wind and snow load on the wires. There is no hope for repairing or isolating; but there must be more damages. The circuit breakers still refuse to be switched in.

The telephone connections are working again. There is an endless chain of calls by apprehensive families and deported astronomers, the latter asking if they can return for observations. No comment!

For lunch we have one of these typical Chilean bad weather dishes *sopaipillas* and *picarones*. The kitchen staff does its best.

We have to do something about the entertainment of the outof-work visitors. Some must have seen the few video tapes a number of times. After dinner a desperate call comes from the porter-house at Pelicano. We had nearly forgotten the lonely man down there, and now he is afraid of being drowned. "Corre la quebrada": this means that a stream of water is flowing down the valley. This, too, is a rare phenomenon, but we had it now three times after a dry period of many years. The porter is consoled by the advice to move to a somewhat higher place. Anyway, the Unimog drives down through night and snow, then rain. May be it can prevent water damages to the porter house by excavating some trenches, and so it does. During the hour-long return trip up-hill the two on their engine perceive that wind and snow are abating. Arriving at La Silla the most beautiful powdery snow is whirling in the head light beams.

Sunday morning is bright with sunshine and glittering snow. Visitors with cameras are seen all over the mountain.

Roads are now covered with ice, traffic is dangerous, but the snow sweeping progresses well and also the electricians succeed in connecting little by little the various zones after a careful cleaning of the switchboards from snow and ice. The main damage can be by-passed and the rest can be repaired on Monday.

In general, the snow is only 20 to 30 cm deep. It seems all was swept down-hill by the storm. But there are several snowdrifts more than 2 metres high.

About half of the staff arrives on Monday noon in order to check all equipment and to put it again in operation. At some telescopes, even the scientific night-work starts.

On Tuesday, the Observatory works again full power in spite of the traffic restrictions.

There are further damages, of course, to buildings, roads and equipment, but altogether of relatively low importance. It will take some time to get everything repaired.

As the wise men at La Silla predicted, there is now in September and October a consequence as rare as the abovementioned events, manifesting itself by an intense carpet of flowers and grass all over the usually arid region.

ALGUNOS RESUMENES

El telescopio de 2,2 m se encuentra listo

El telescopio de 2,2 m de Zeiss es el último telescopio que ha llegado a La Silla gracias a un préstamo otorgado por la Sociedad Max Planck a la ESO por un período de 25 años, y en retribución la Sociedad Max Planck recibirá un 25 % del tiempo de observación. ESO tuvo la responsabilidad por la instalación del telescopio, por las modificaciones necesarias y la construcción del edificio y la cúpula de acuerdo a las especificaciones acordadas con la Sociedad Max Planck. ESO tendrá además la responsabilidad por la mantención y la operación del telescopio.

La instalación del telescopio comenzó el 15 de febrero de 1983 y como resultado de la excelente colaboración entre el calificado personal de Zeiss y MAN y los servicios de muchos técnicos de la ESO se obtuvo la "primera luz" en la noche del 22 de junio de 1983. Durante las siguientes semanas se usó el telescopio para el ajuste óptico, mecánico y electrónico. El término del mal tiempo de invierno hizo posible comenzar a usar el telescopio con la cámara fotográfica, el espectrógrafo B & C con la cámara CCD, o con un detector danés RPCS y la cámara CCD en modo fotográfico. En su mayor parte la visibilidad fue superior a 1 arco por segundo, y aparentemente todos los instrumentos trabajaron al esperado nivel. En las páginas 15 y 16 de esta edición del Mensajero se encuentran ilustradas dos fotografías tomadas con el telescopio. Actualmente se están haciendo los ajustes finales y existe justa razón para pensar que, como previsto, el telescopio será totalmente operable desde el 1° de enero de 1984, y que a partir de entonces los astrónomos europeos tendrán la ventaja de usar este potente nuevo telescopio en Chile. *M. Tarenghi*

Temporal de nieve en La Silla

A comienzos de julio de 1983 un temporal de nieve poco usual trajo algo de confusión a la vida en La Silla. El mal tiempo comenzó el día jueves 7 de julio con neblina, fuertes vientos y lluvia, la cual se convirtió en nieve al anochecer.

El día viernes por la mañana la montaña se encontraba cubierta por una capa de nieve. Pero ésto fue tan sólo el comienzo. La nieve cayó mas copiosamente, la velocidad del viento aumentó a aproximadamente 120 km por hora y la visibilidad se redujo a sólo unos cuantos metros. Para empeorar aun más la situación, la energía eléctrica falló en el observatorio. El barrenieves ya estaba en camino a Pelícano por lo que no hubo modo de abrirse camino a las plantas de energía para poder subsanar el defecto.

Ya que un fallo de energía eléctrica no sólo significa que no haya luz ni teléfono, sino también fallan la calefacción y la cocina, se decidió enviar al personal y a los visitantes en bus a La Serena y de sólo conservar un pequeño grupo de emergencia en la montaña.