THE 30TH DECEMBER 2002 TSUNAMI IN
STROMBOLI: SEQUENCE OF THE EVENTS
RECONSTRUCTED FROM THE EYEWITNESS
ACCOUNTS

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The 30 December 2002 Stromboli was attacked by two tsunamis generated by land-
slides that took place in the northern part of the Sciara del Fuoco (SdF) in the north-
west flank of the volcano. The crisis started on December 28 with a strong effusive
eruption from a new vent which opened close to the north-east crater. In spite of the
more intense monitoring operations that were carried out in response to the eruption,
the SdF landslides and the ensuing tsunamis occurred unexpected, and the available in-
strumental data are insufficient to allow a reconstruction of the sequence of the events.
The seismic network recorded two main landslides along the steep slope of SdF, at
13:14:05 and 13:22:38 local time. The total volume of the collapse amounted to about
2.5 \times 10^7 m^3: the first slump was about 3/4 of the total volume, and of submarine nature,
the second one was at most subaerial. The tsunami phenomena were the direct conse-
quences of the mass movements. Several post-event surveys helped make assessment
on the wave impact on the coast.

Here the focus is centred on the accounts of the eye-witnesses. Each of them picks
up only a fragment of the total picture, and some of them are partly contradictory,
but assembling and putting them together helps resolve the discrepancies, and clarify
and understand what really happened in that day. From viewpoints located on both
sides of SdF a small-volume subaerial mass movement was seen to precede the sub-
marine slide: a sharp water cut down to the sea floor (about 10-20 m deep) was seen
to propagate almost parallel to the coastline. The second, mostly subaerial, slump was
observed to slide down some minutes later and to excite a train of waves some distance offshore. Not all the witnesses realised the occurrence of two distinct tsunamis, but some of them did. The tsunami period was probably in the order of one minute, but short period large-amplitude waves were seen to travel on the top of the long-period waves by several persons. The duration of each tsunami was appreciated to be around 5-7 minutes. Which tsunami was the largest it is difficult to ascertain, since there is no full agreement among the observers, but probably both were characterised by large waves.