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Corporate Report on the 8 July 2015 Tornado of Mira (VE), Italy

Time tornado on ground:	17:25 to 17:45 local time (CEST), 15:25 to 15:45 UTC
Affected communities:	Baluello (Pianiga) Arino (Dolo), Pianiga (Cazzago), Cazzago, Dolo (San Bruson), Mira, Porto Menai (Mira), Piazza Vecchia
Length of damage path:	11 km
Mean width of damage path:	700 m
Maximum width:	1000 m
Maximum intensity:	F4, violent
Number of fatalities:	1 (person was forced to stop car because of electric mast blocking the road, then car was picked up by the tornado)
Number of injuries:	72
Damage:	about 100,000,000 EUR
Accompanying hail:	5 to 7 cm

The tornado first touched the ground south of Baluello near Pianiga and then showed a continuous damage track (except for some open fields without appropriate damage indicators) for 11 km in direction ESE. It quickly acquired F2 intensity.



Image 1: Significant roof damage on a strong brick building (F2) in Pianiga (photo: Rainer Kaltenberger)

In Cazzago the tornado first went through an industrial zone and then through the town center with mainly F2 intensity.



Image 2: F2 damage in Cazzago industrial zone (photo: Rainer Kaltenberger)



Image 3: F2 damage (significant roof damage to strong brick structure) in Cazzago (photo: Rainer Kaltenberger)

In the eastern neighborhoods of Dolo F3 intensity was typical close to the tornado center and many houses were badly damaged.



Image 4: F3 damage (strong brick structure, roof gone) to a house in eastern Dolo (photo: Rainer Kaltenberger)

The western neighborhoods of Mira experienced the worst tornado impact. A few buildings were rated F4, including the historical Villa Fini. This villa was assumed to be a “weak brick building” damage indicator because of the very aged and crumbly mortar in between the bricks. This building totally collapsed.



Image 5: Remnants of Villa Fini (F4, collapsed weak brick structure) in western Mira (photo: Alberto Gobbi)



Image 6: F4 damage (strong brick structure, walls partly collapsed) in western Mira close to the Villa Fini, on the other side of the streamer (photo: Alberto Gobbi)

South of the Naviglio del Brenta the tornado still maintained an intensity of F4 or upper F3 for some time. A high voltage electric power pole was twisted and collapsed. Then the tornado reached open fields and then the southern settlements of Mira – still with F2 intensity south of Piazza Vecchia.



Image 7: South Mira F3+ damage (weak brick structure, walls partly collapsed, photo: Alberto Gobbi)

The last minor damage was visible at the easternmost farm before the coastal swamps (lagune) and sand dunes of the Adriatic Sea.



Image 8: F2 damage (strong brick structure, significant roof damage) in Piazza Vecchia (photo: Alois M. Holzer)

The damage survey on 11, 12 and 13 July showed consistent results and is supported by imagery from very soon after the event on 8 July 2015.

This report is based on 120 data points (most often houses) with intensity ratings or other relevant information and hundreds of damage photographs. For information on the meteorological environment and radar data please refer to the initial report of ARPA Veneto:

http://www.arpa.veneto.it/temi-ambientali/meteo/riferimenti/documenti/documenti-meteo/Relazione%20tornado%20sul%20veneto%2008_07_15.pdf

See also:

<http://www.meteonetwork.it/veneto/tornado-mira-e-dolo-ve-dell8-luglio-2015>

Newspaper reports:

<http://mattinopadova.gelocal.it/padova/cronaca/2015/07/09/news/tornado-in-riviera-del-brenta-un-morto-e-30-feriti-1.11747772>

http://www.ilgazzettino.it/NORDEST/PRIMOPIANO/richiesta_stato_emergenza_tornado_veneto_zai_a_renzi/notizie/1466957.shtml

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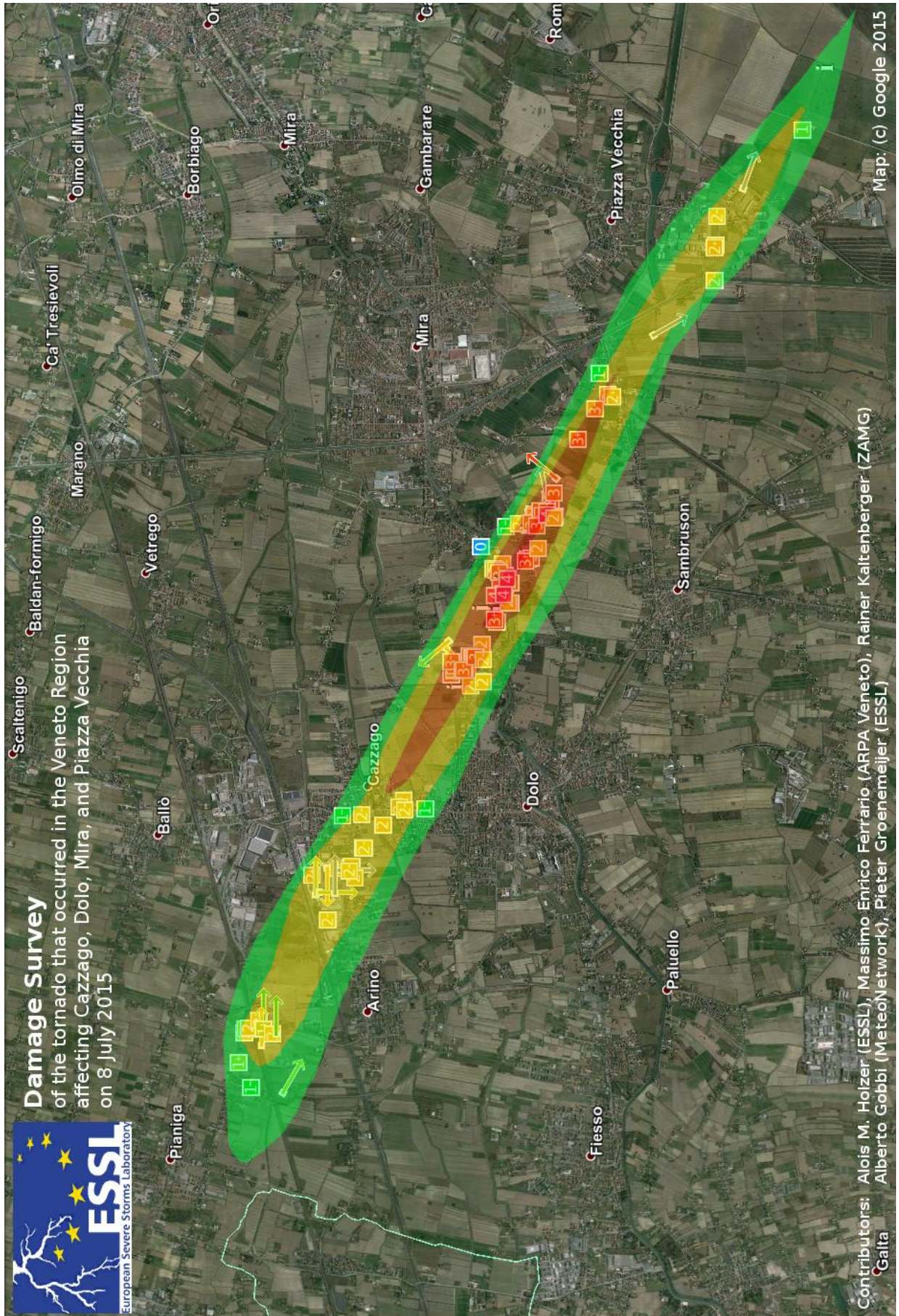
We want to thank all people who delivered valuable information to us or by other means supported this study.

Content as of 2 September 2015

Attachment 1: Tornado intensity map

Attachment 2: List of damage ratings

Attachment 3: ESSL working paper for damage ratings



Attachment 1 to the Corporate Report on the 8 July 2015 Tornado of Mira (VE), Italy:
Tornado intensity map (base-map: Google; design: Pieter Groenemeijer)