

Provincia di Venezia

**I Piani comunali delle Acque
strumenti di sicurezza idraulica e opportunità per la
rigenerazione del territorio**

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Dipartimento di Ingegneria Idraulica, Marittima, Ambientale e Geotecnica

Venezia, 4 novembre 2011

Sicurezza idraulica delle aree urbane

Rete di bonifica:

17'800 km di rete di canali (1,58 km/km²)

5'000 manufatti di rilevanza

389 impianti idrovori

superficie

1'170'000 ha

superficie soggiacente al livello del mare

185'000 ha (16%)

superficie soggetta a pompaggio delle acque

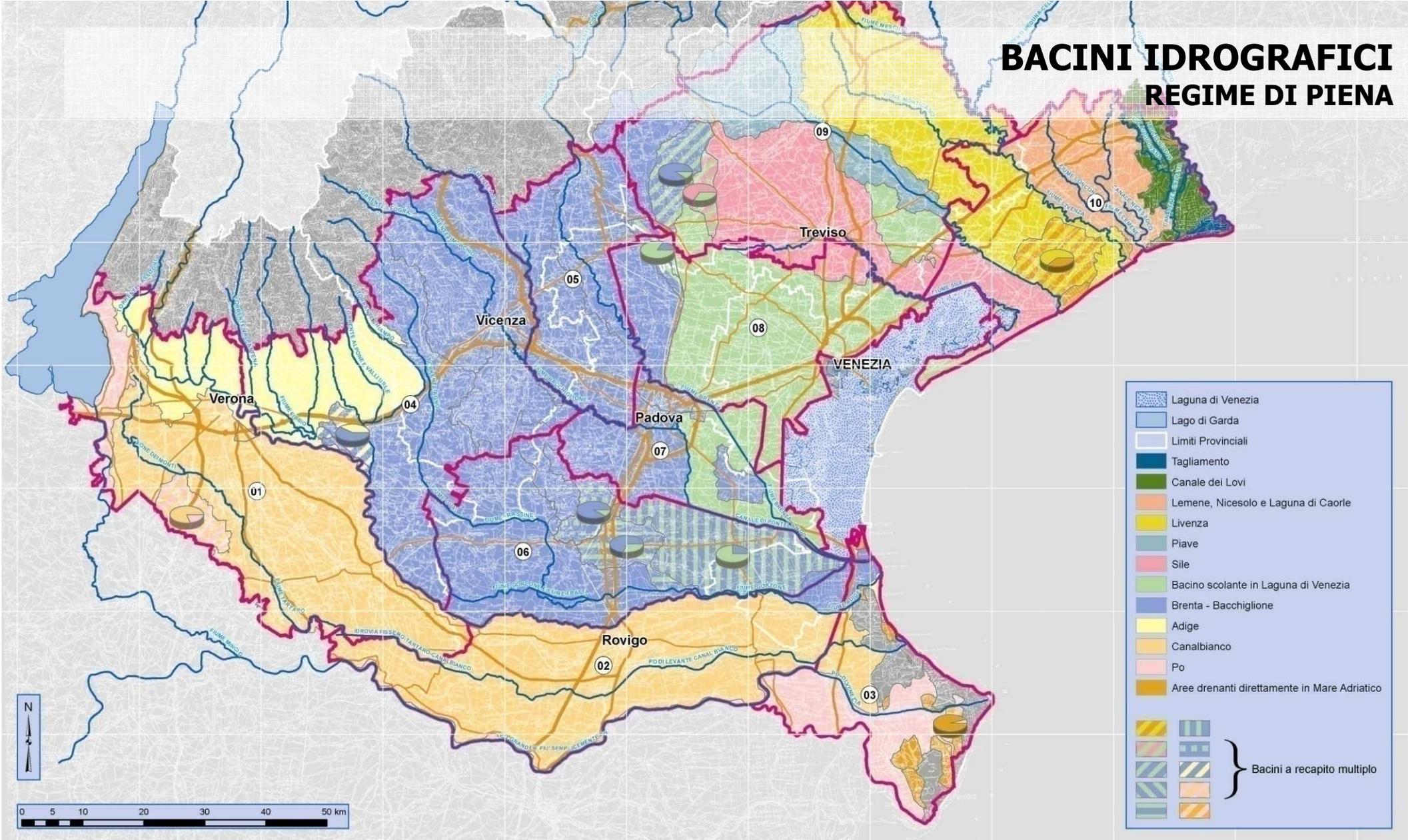
354'000 ha (30%)

superficie allagata nell'ultimo trentennio

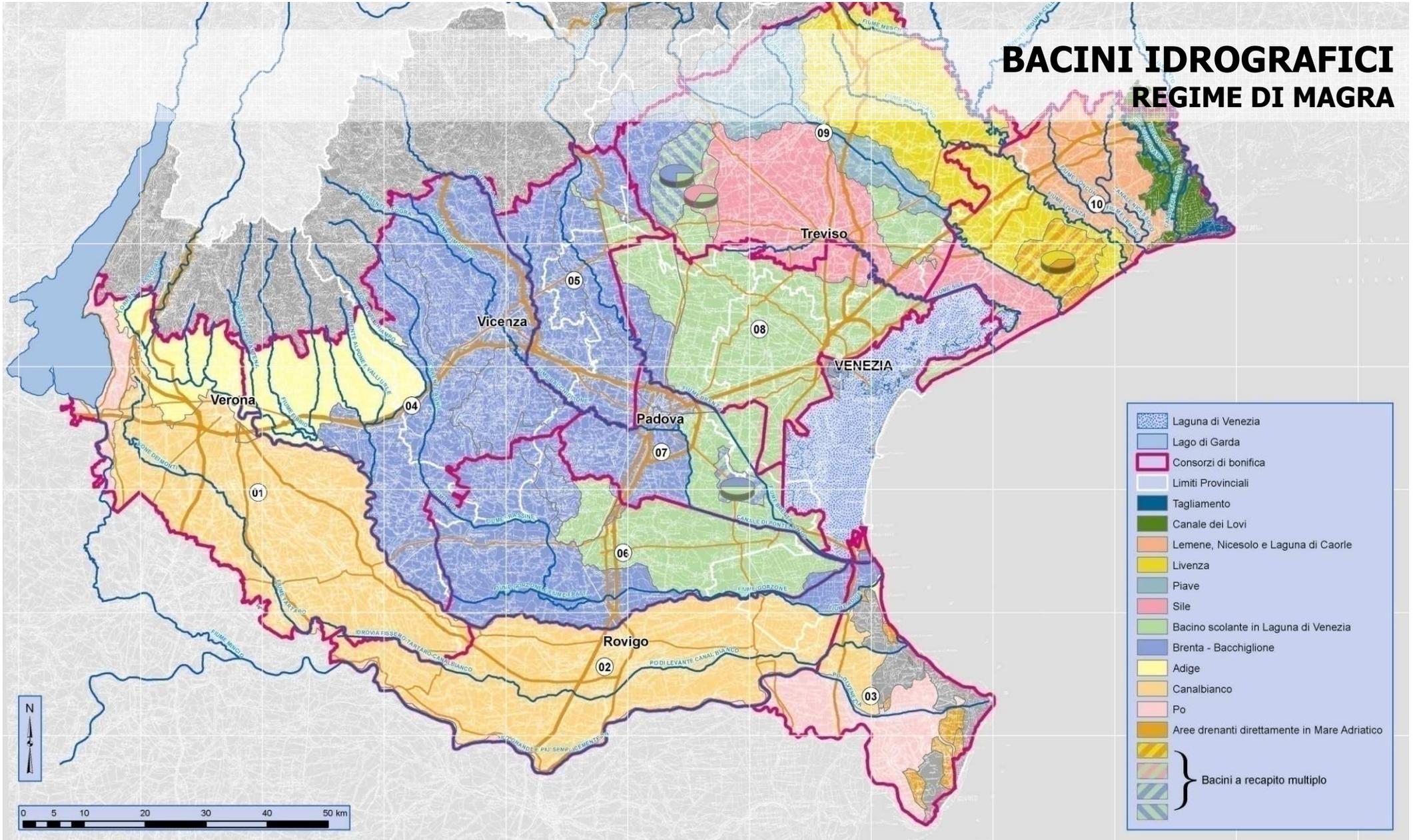
200'000 ha (17%)

Corsi d'acqua principali

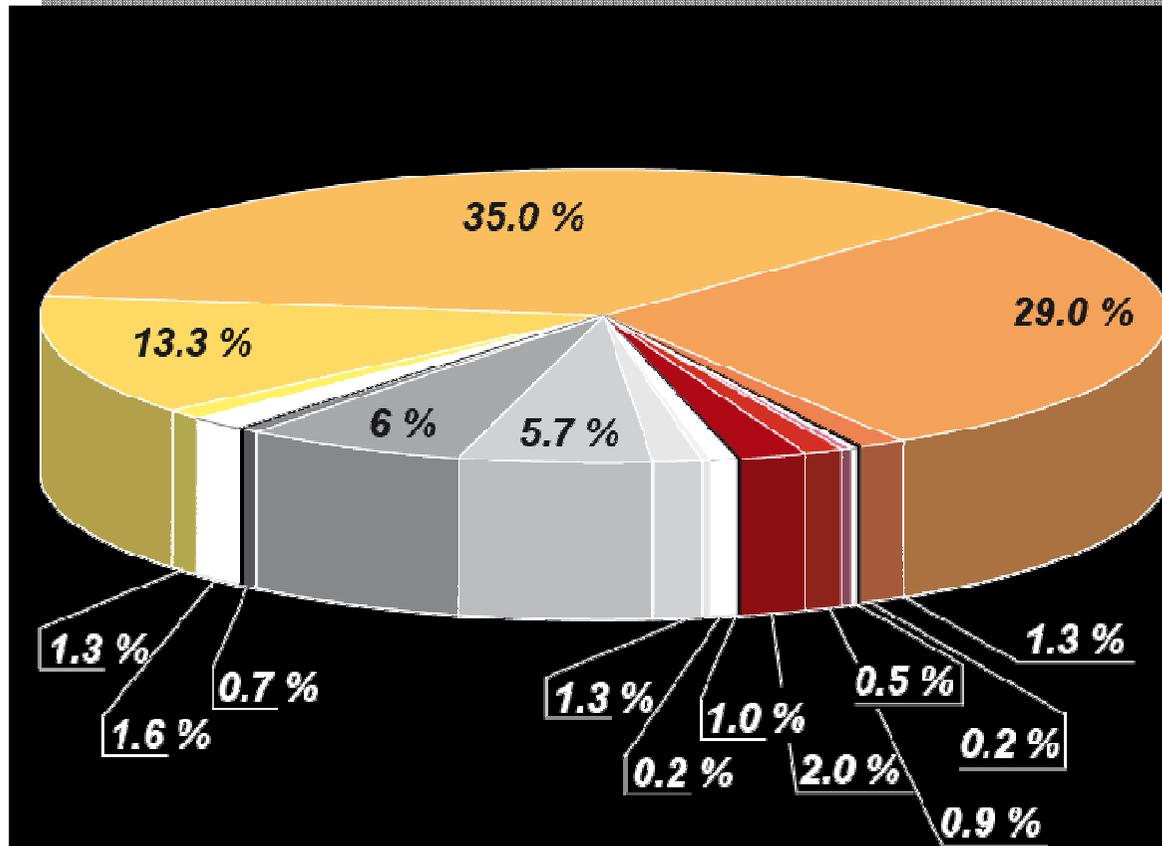
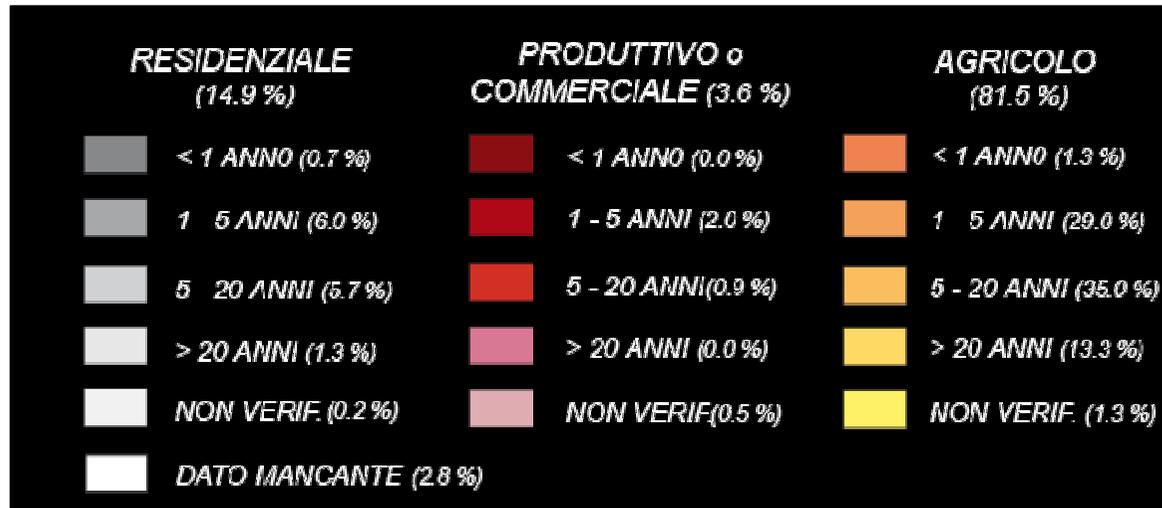
BACINI IDROGRAFICI REGIME DI PIENA



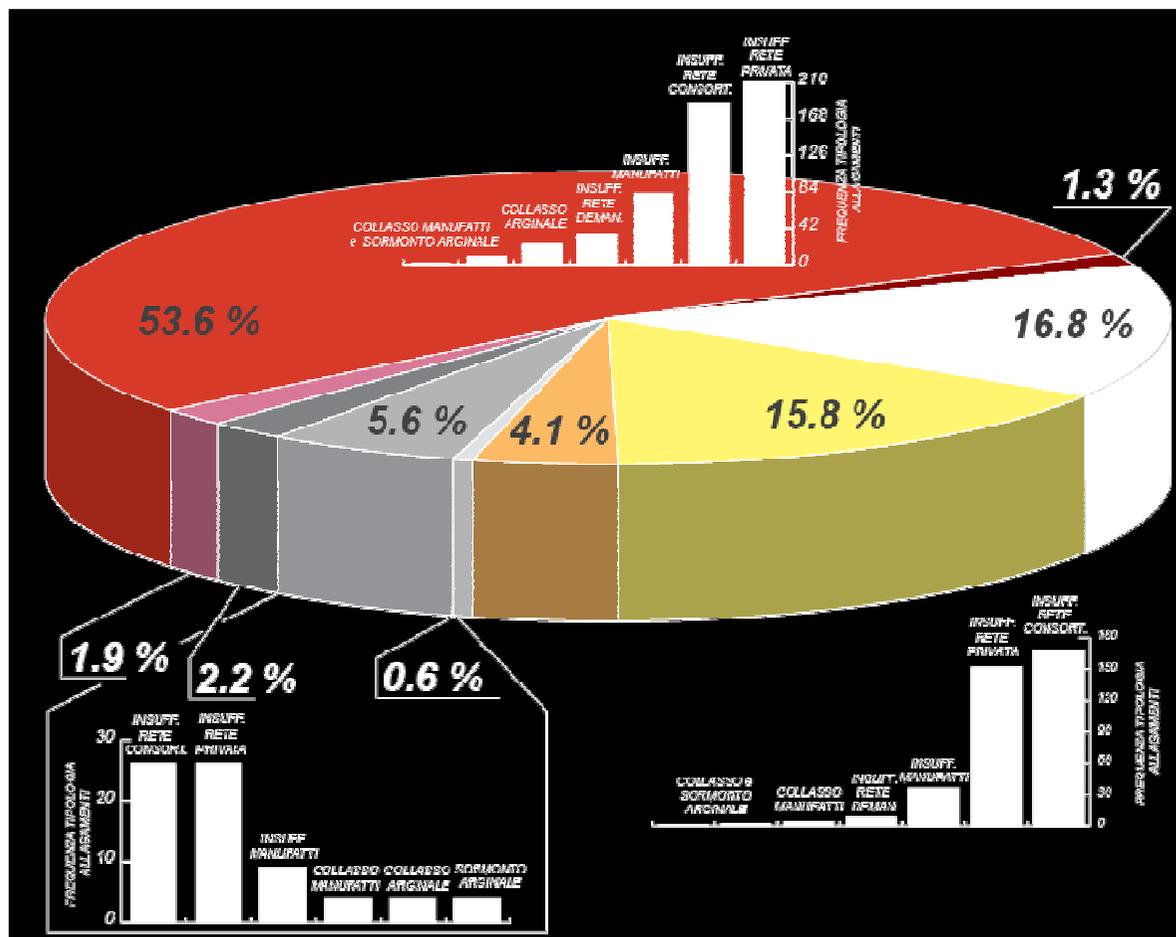
BACINI IDROGRAFICI REGIME DI MAGRA



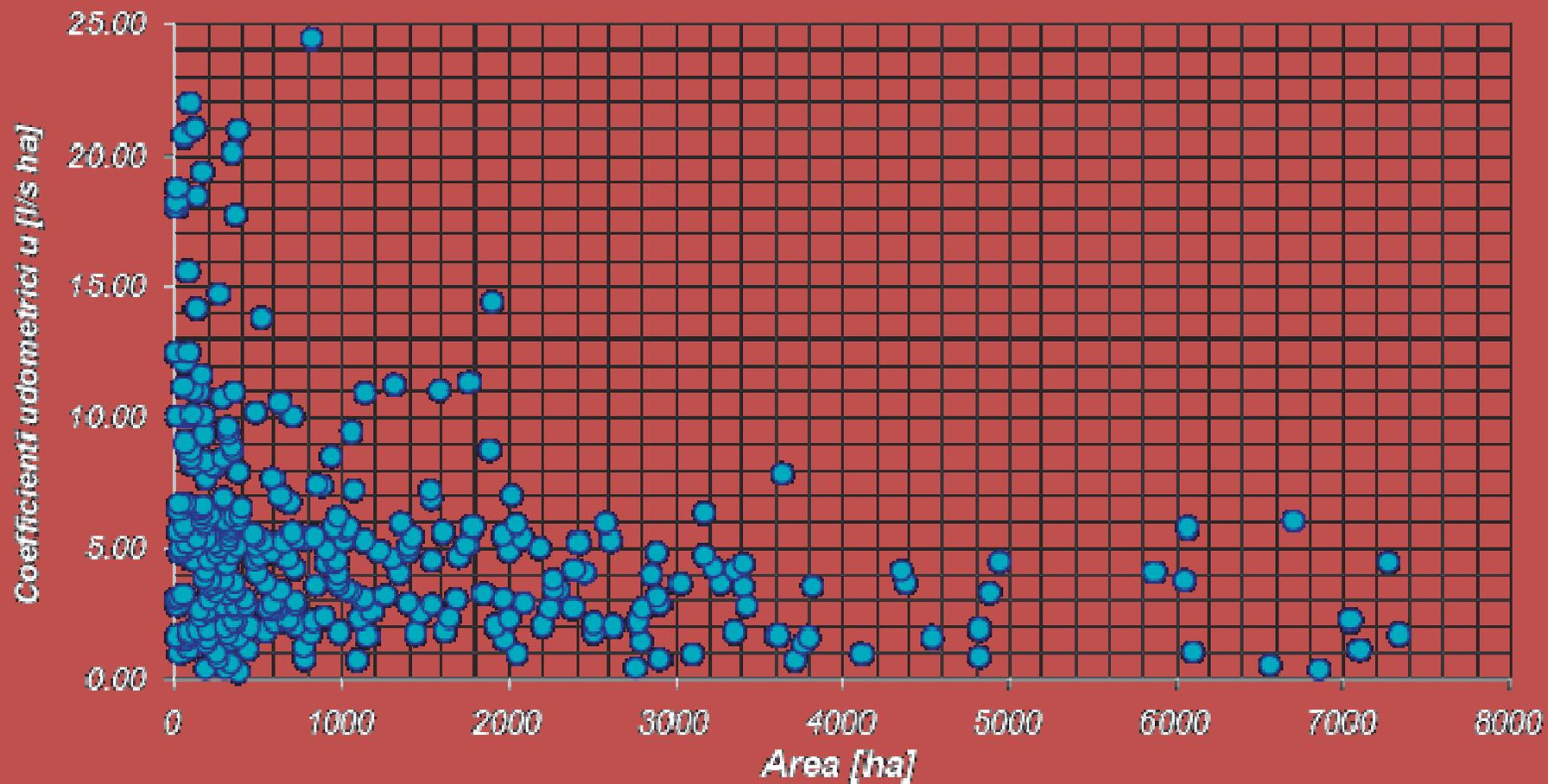
AREE ALLAGABILI e FREQUENZA di ALLAGAMENTO



AREE ALLAGABILI, TIRANTI e DURATA degli ALLAGAMENTI



389 impianti idrovori
portata complessiva 1834 m³/s
potenza installata 118342 kW
gruppi elettrogeni 47312 kw









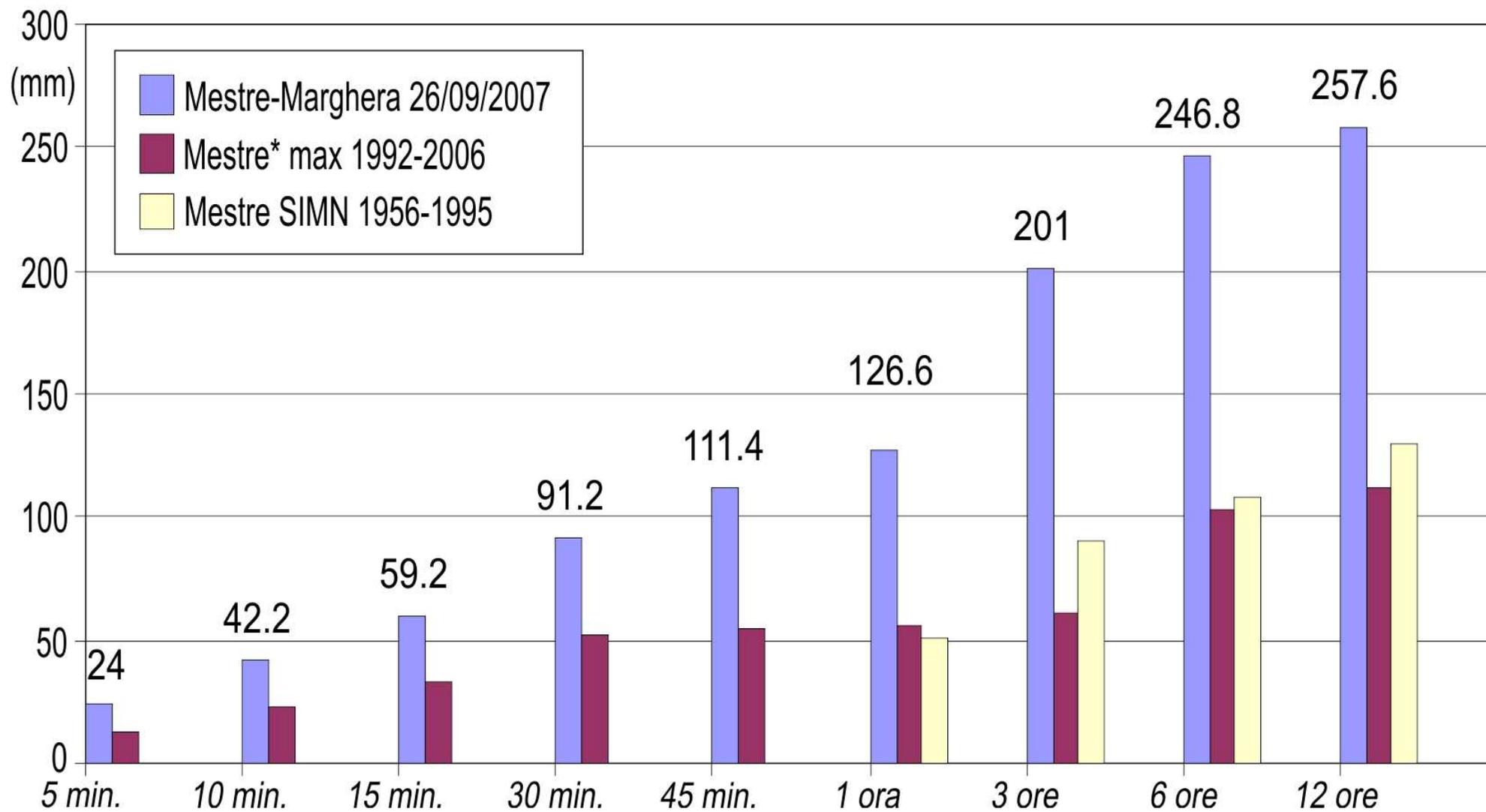
Piogge intense che segnano una
variazione climatica

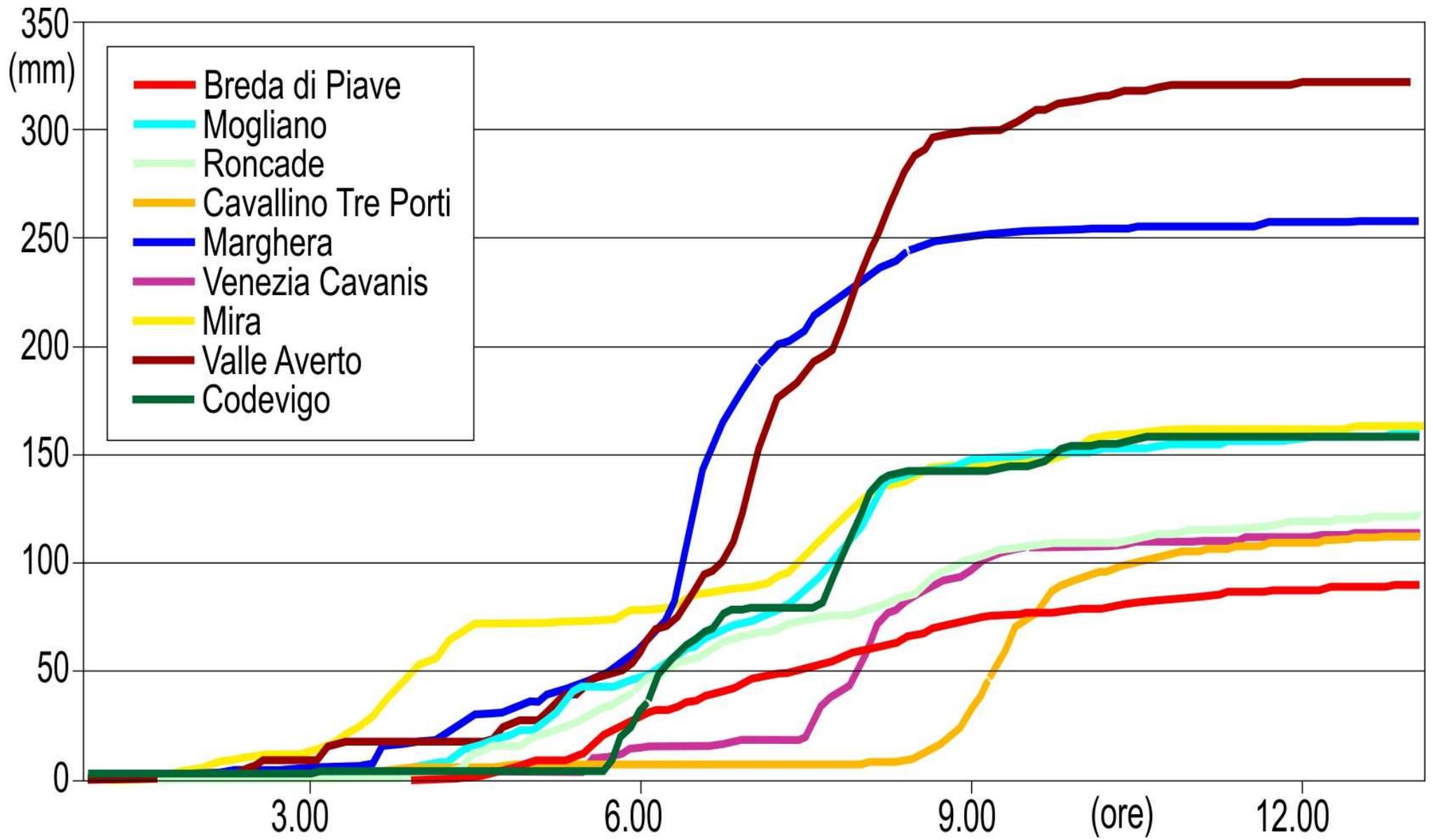
Precipitazioni registrate nel corso dell'evento del 26 settembre 2007 nell'entroterra lagunare veneziano



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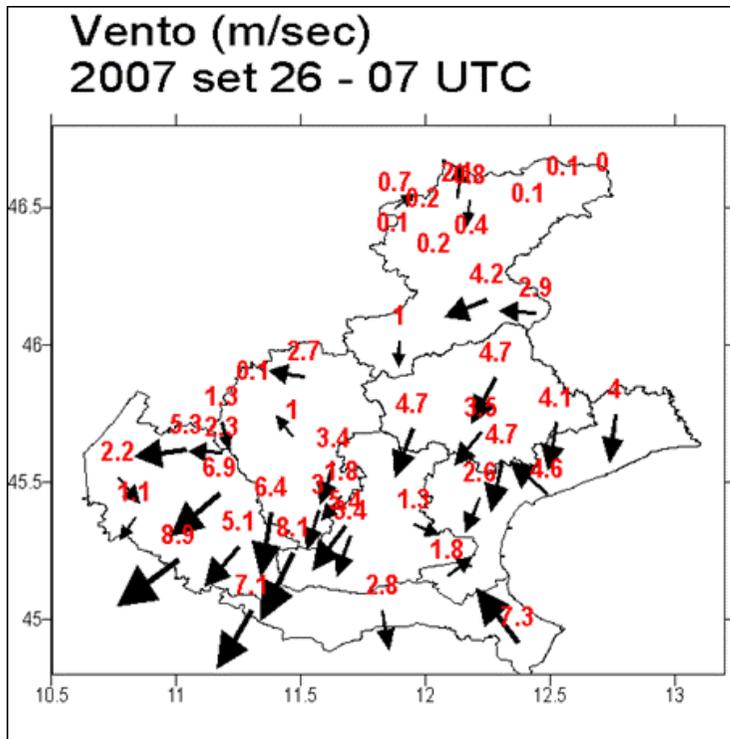
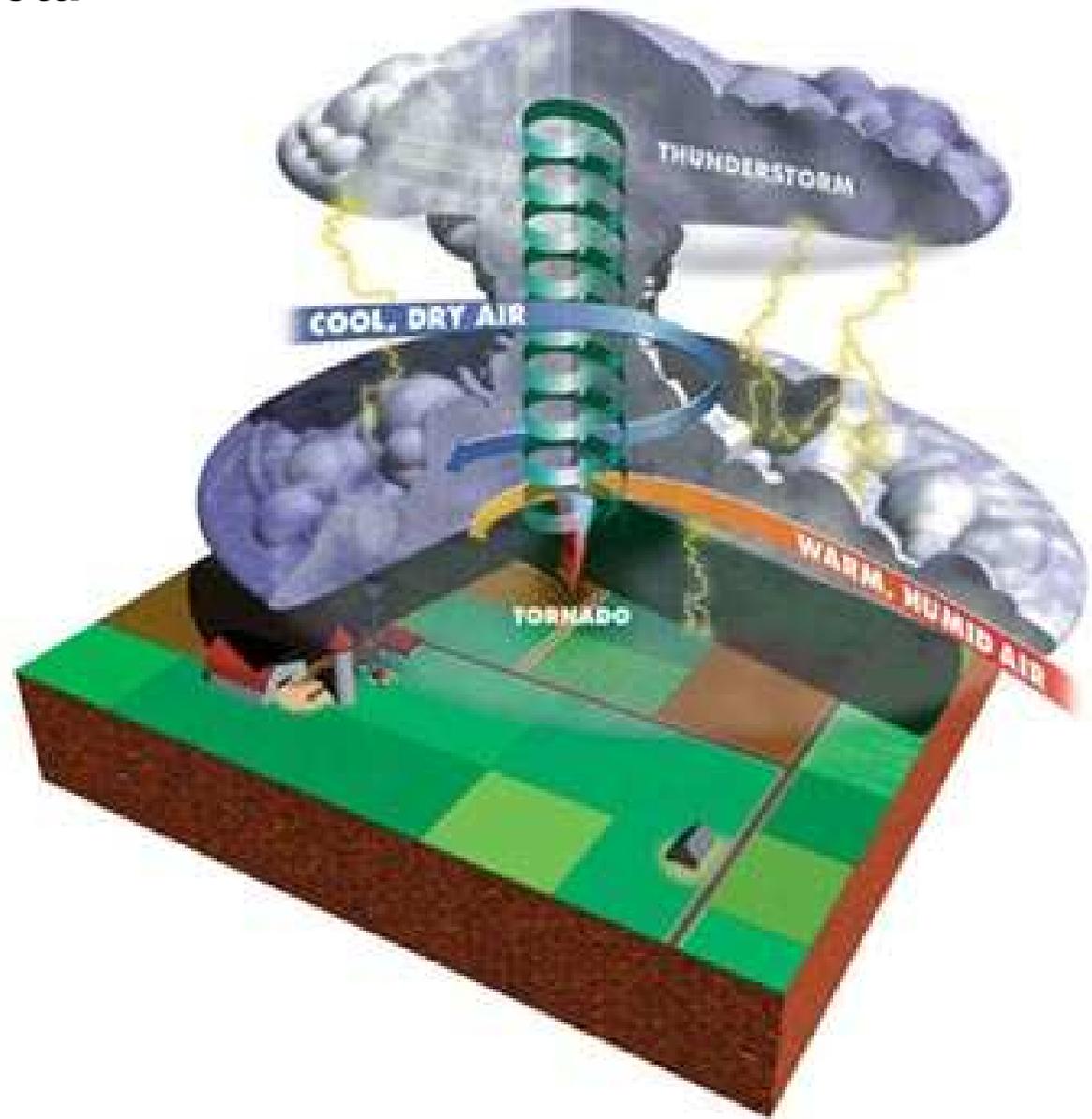






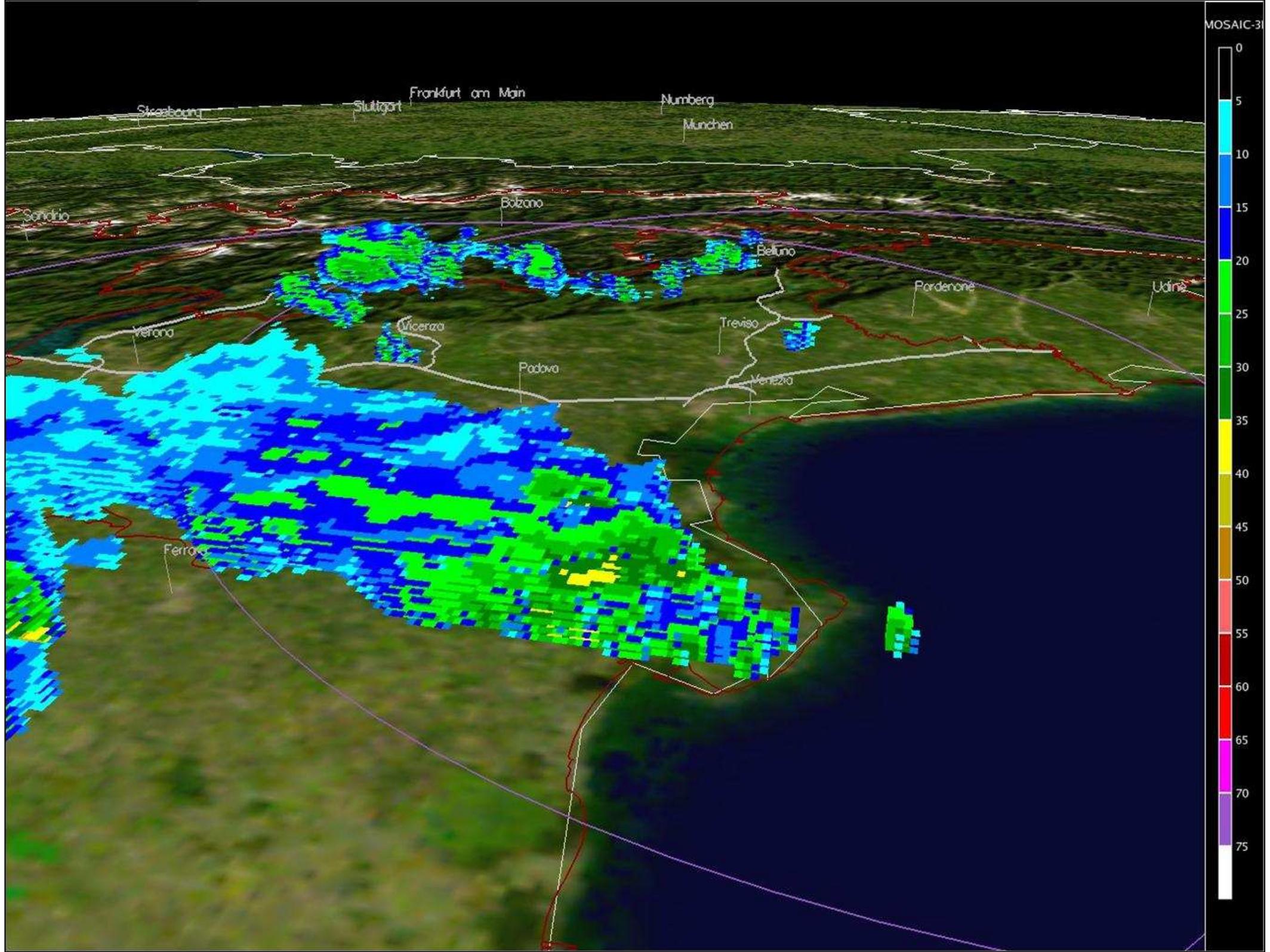
CARATTERISTICHE SALIENTI DELL'EVENTO

Jet Streak Circulations in quota





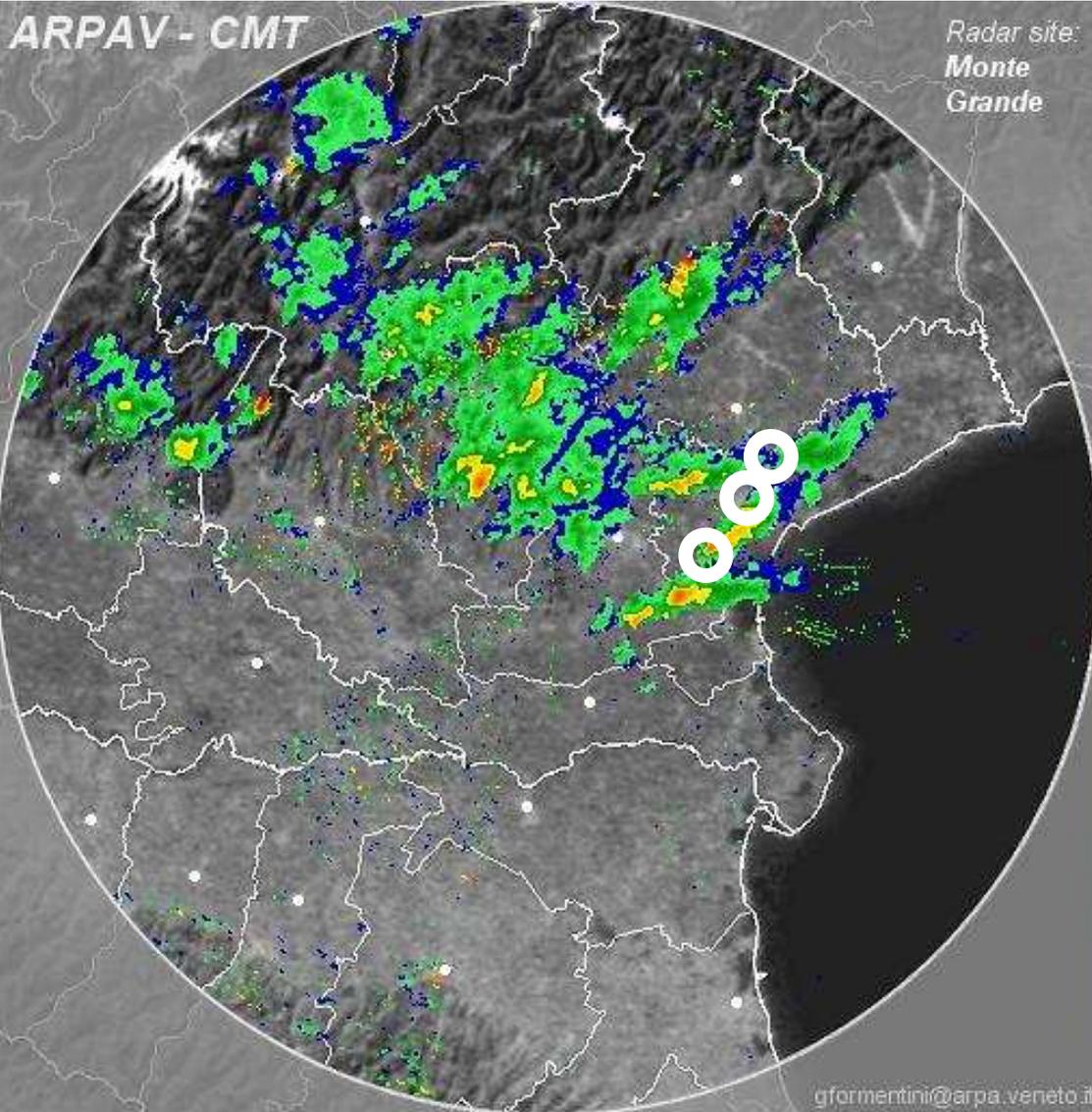




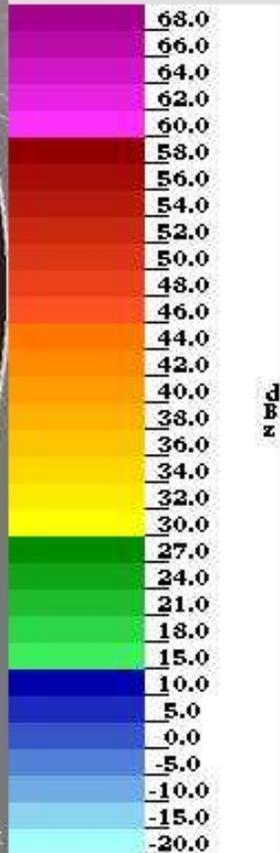
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
00:00



C. Intensity



gformentini@arpa.veneto.it

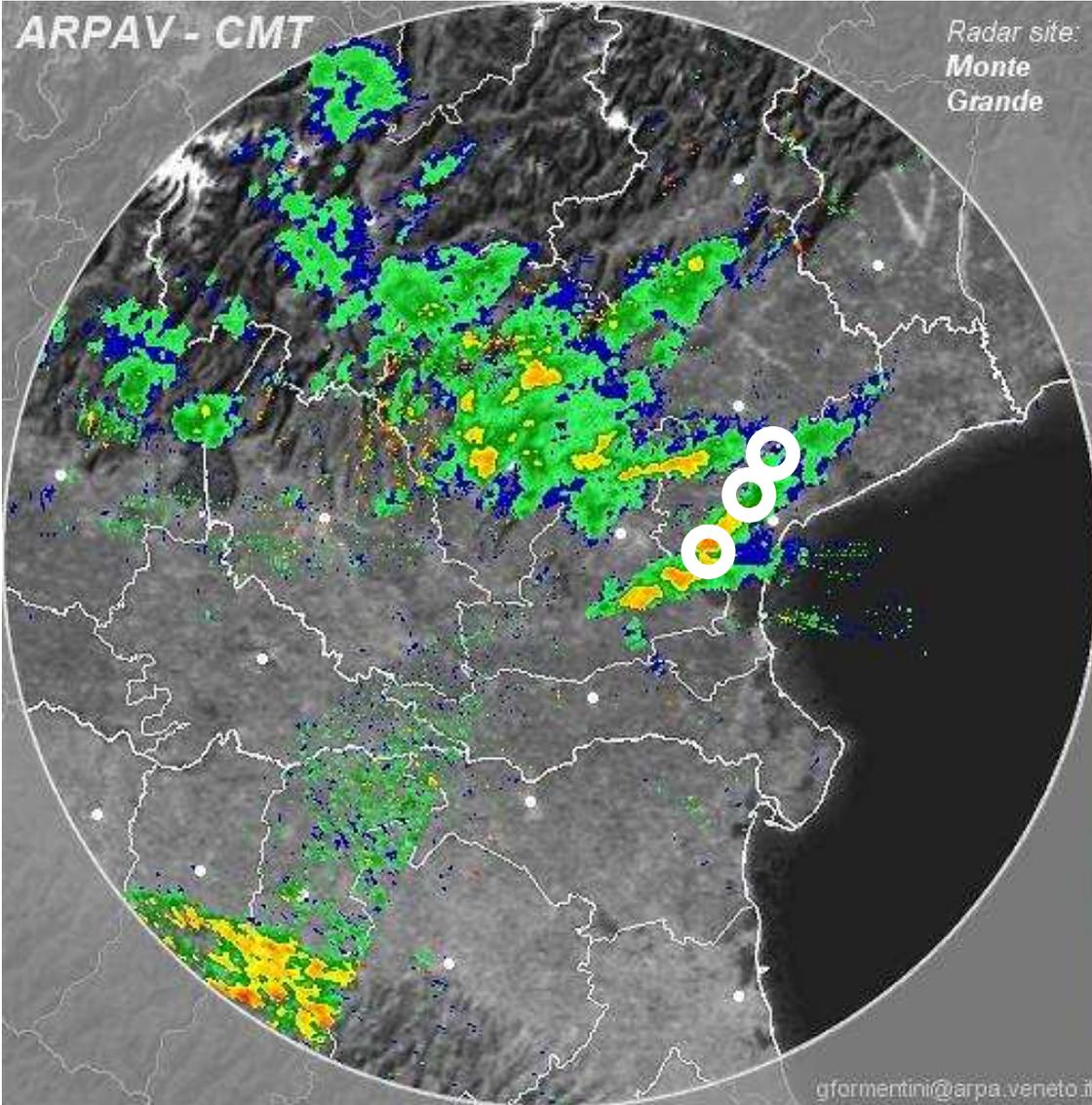
Product Type: Base Section Corrected Intensity Upper : 30

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| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

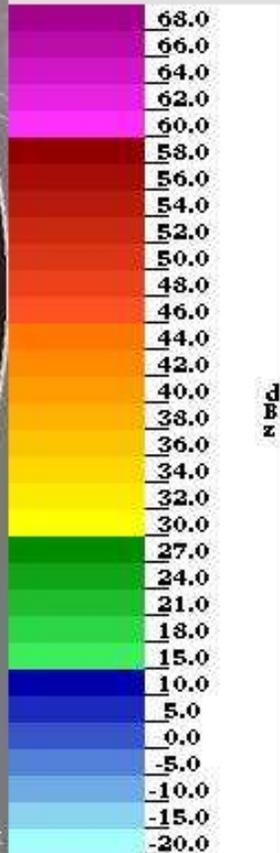
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
00:10



C. Intensity



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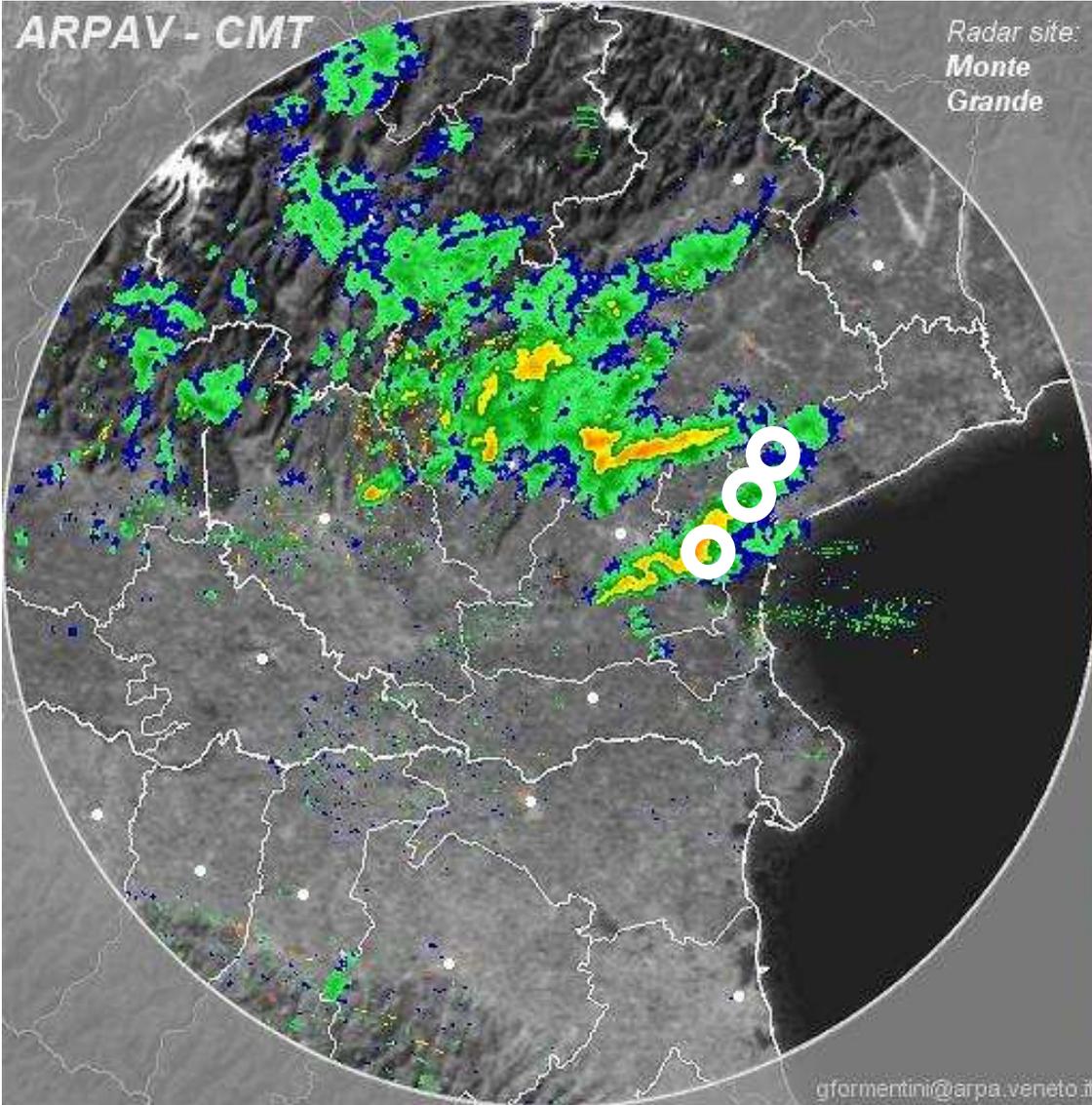
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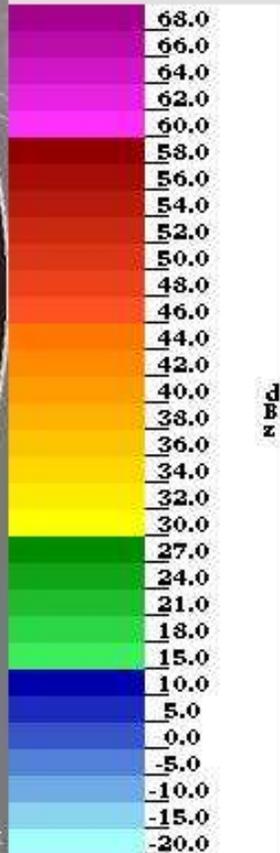
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
00:20



C. Intensity



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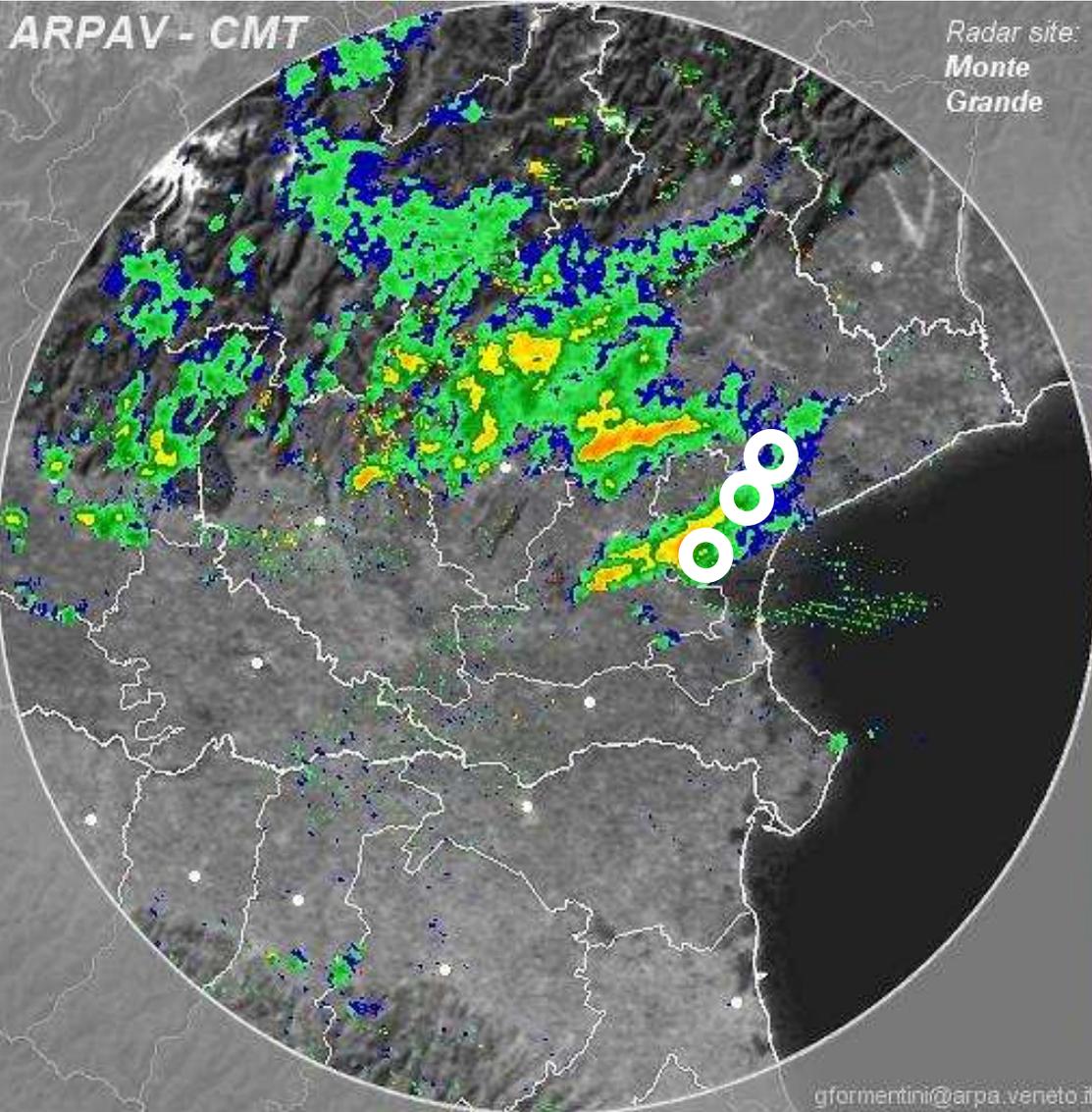
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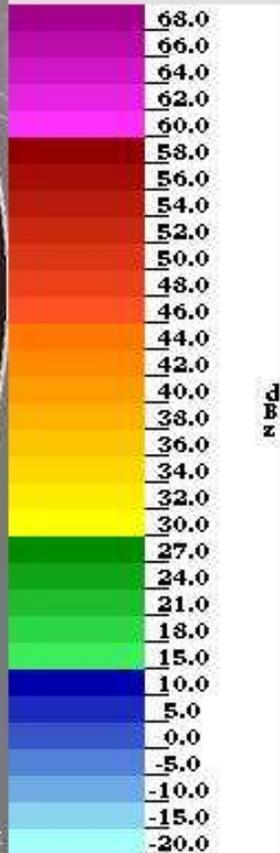
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
00:30



C. Intensity



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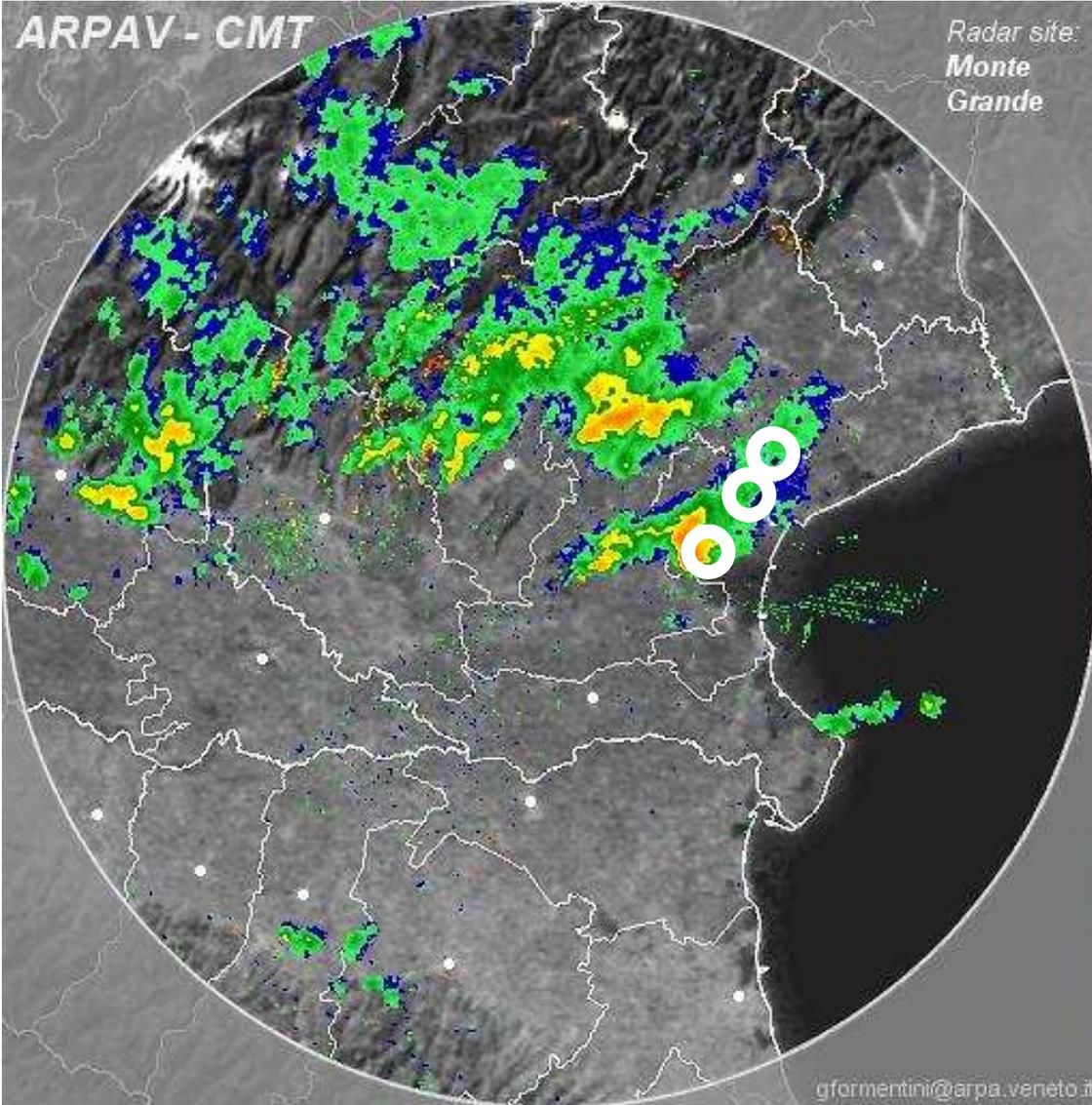
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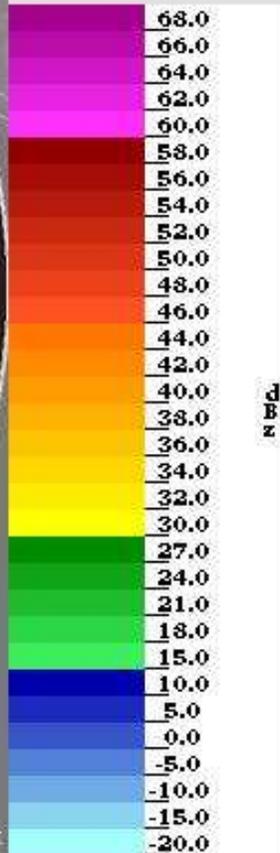
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
00:40



C. Intensity



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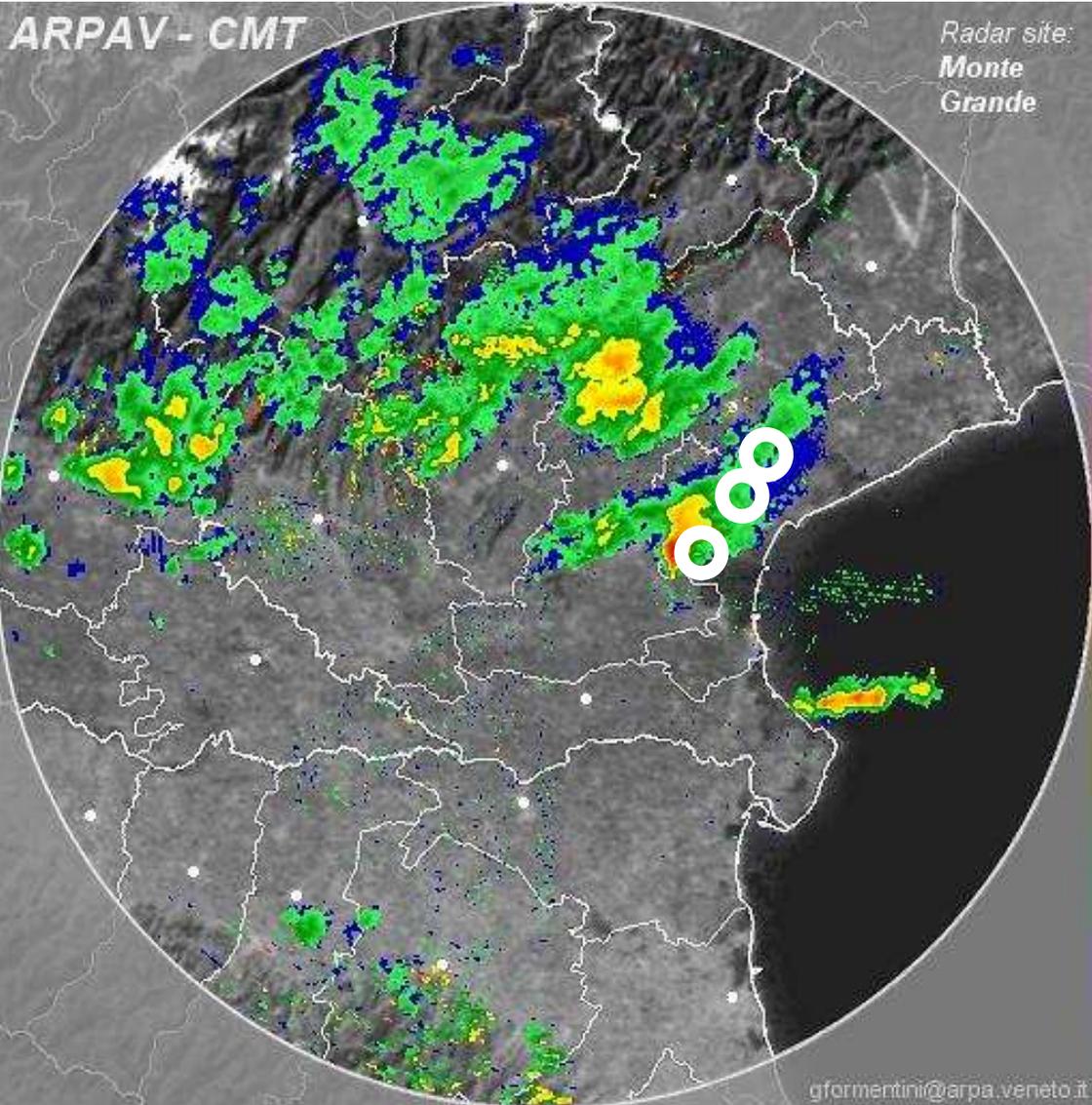
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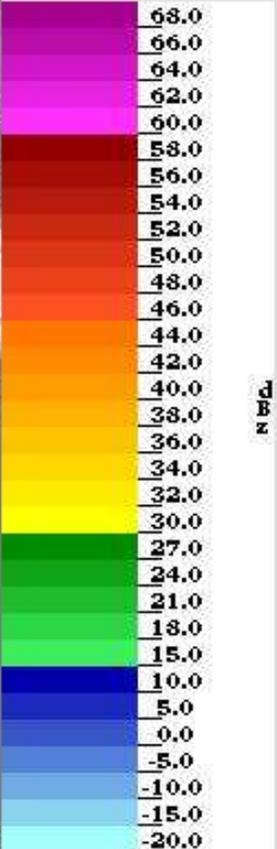
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
00:50



C. Intensity



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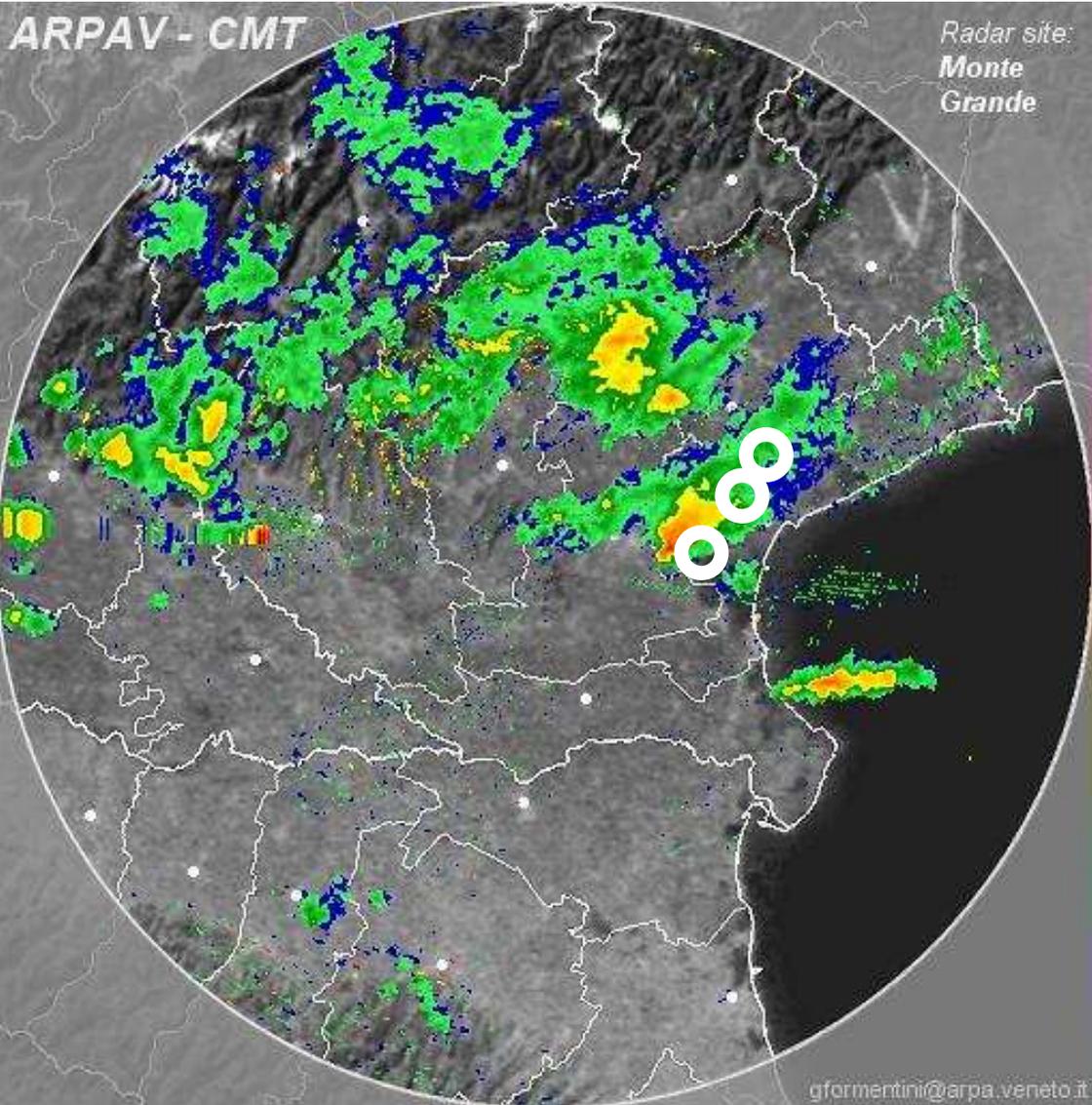
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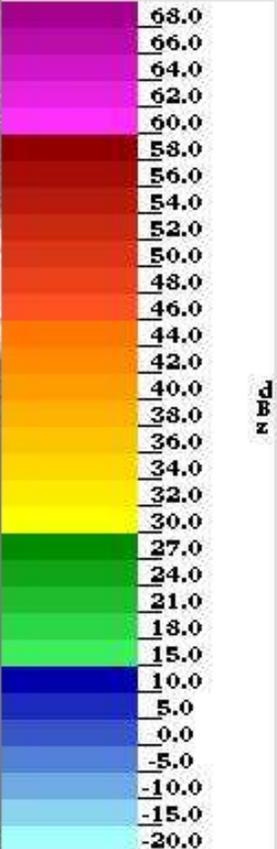
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Radar site:
Monte
Grande

26 Sep 07
01:00



C. Intensity



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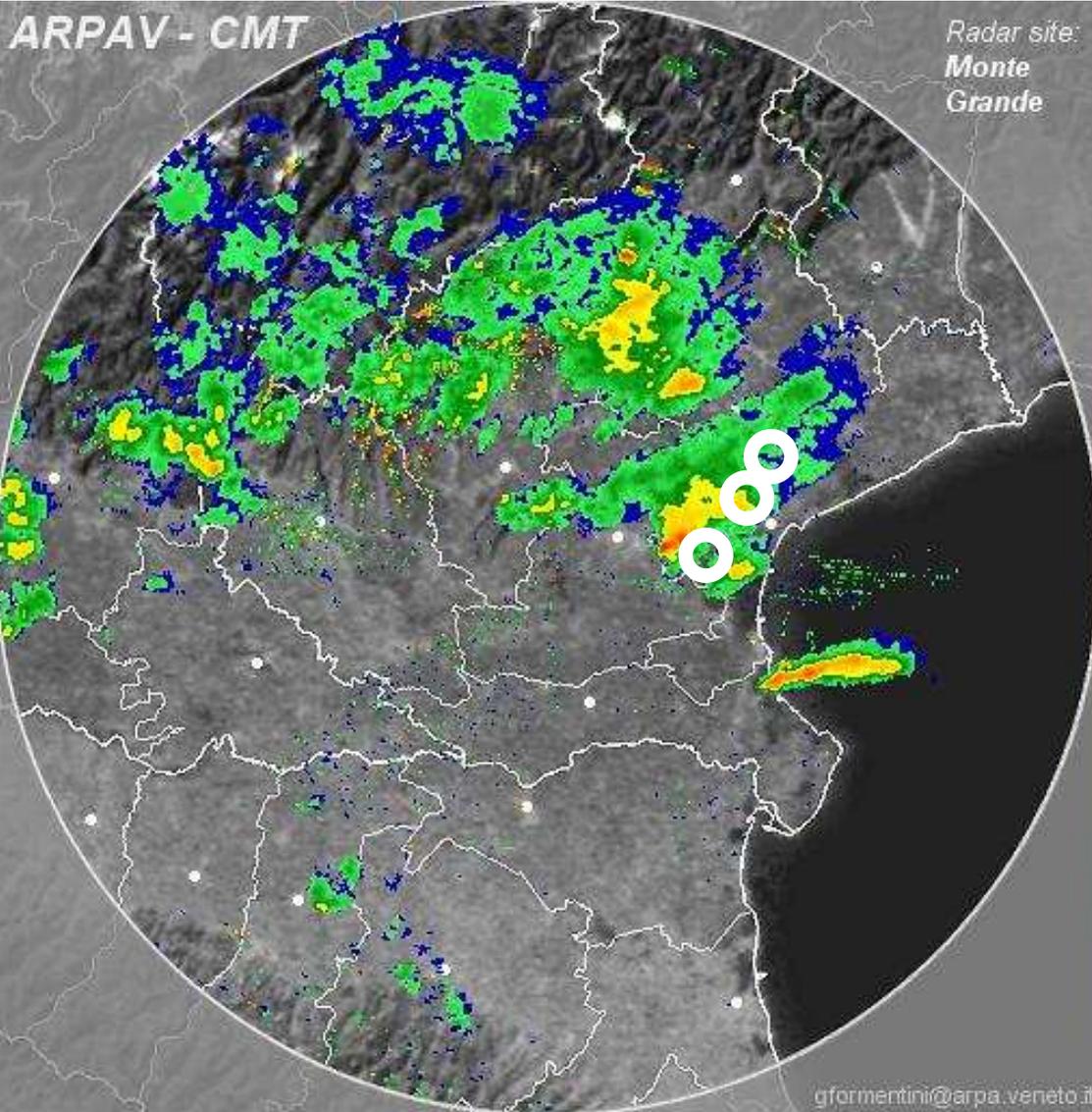
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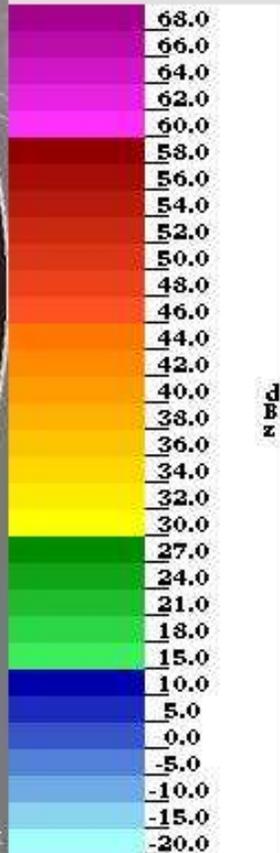
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
01:10



C. Intensity



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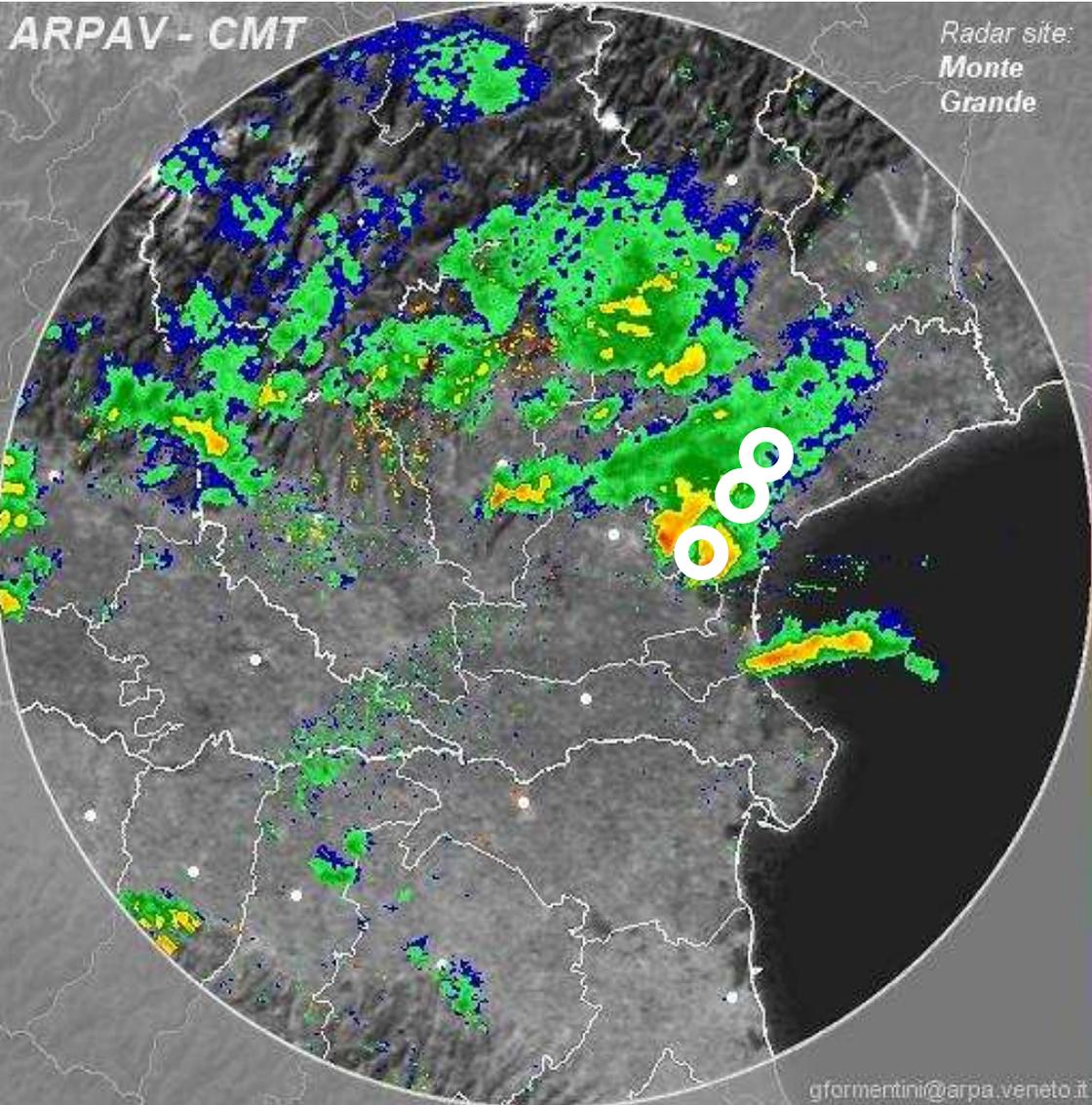
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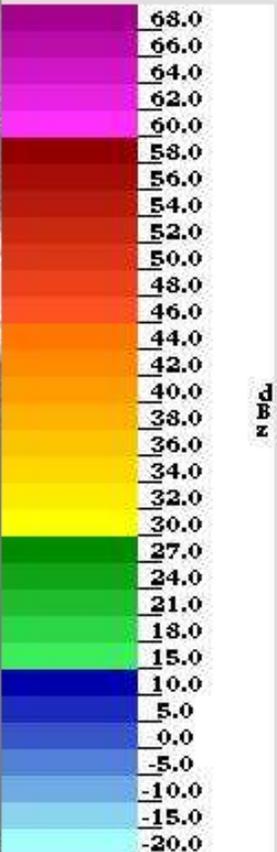
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
01:20



C. Intensity



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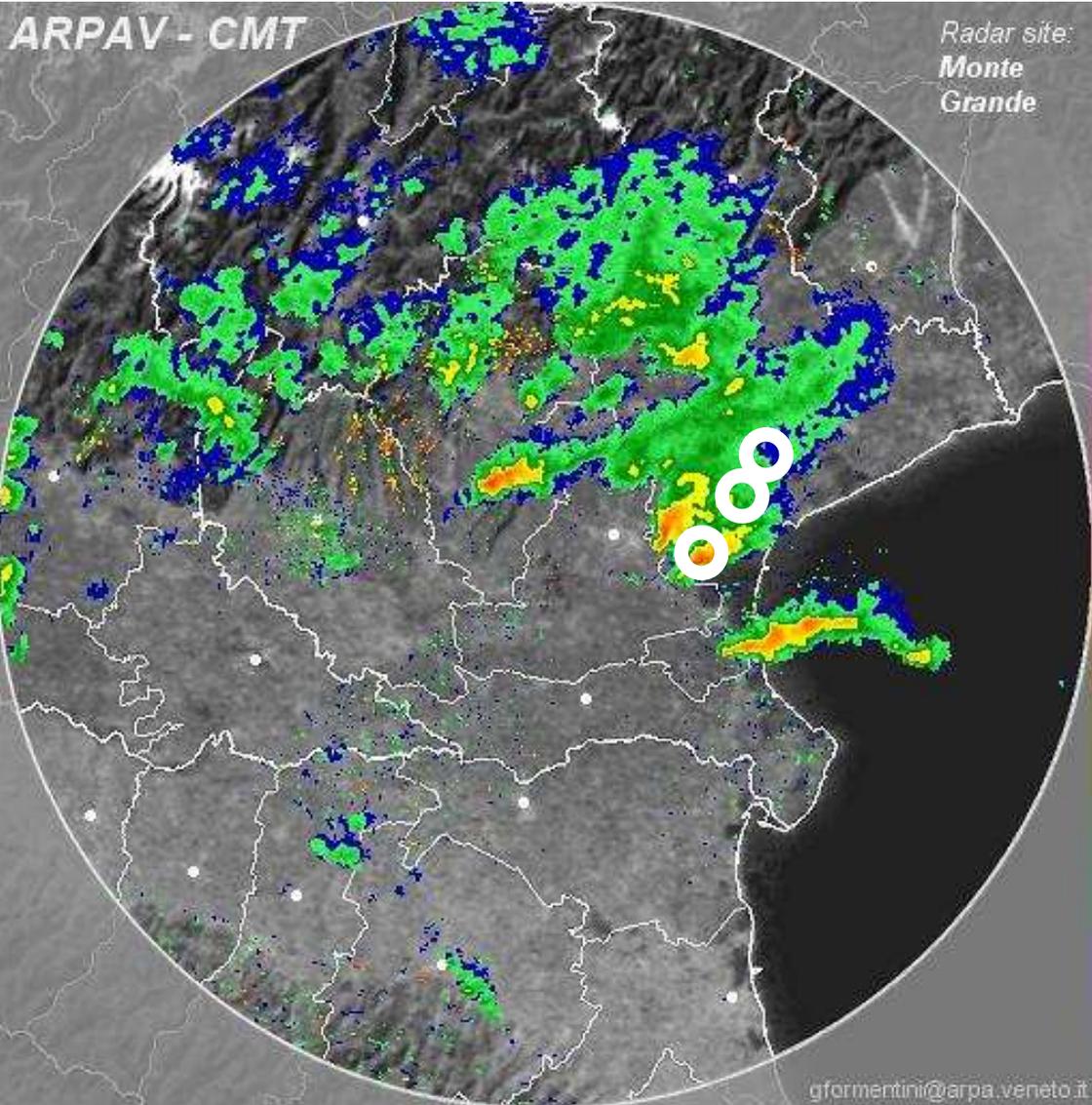
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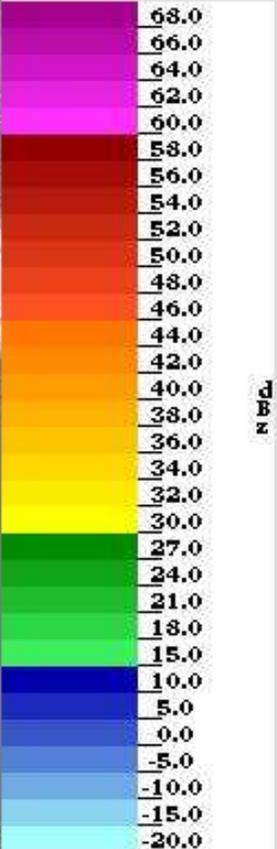
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
01:30



C. Intensity



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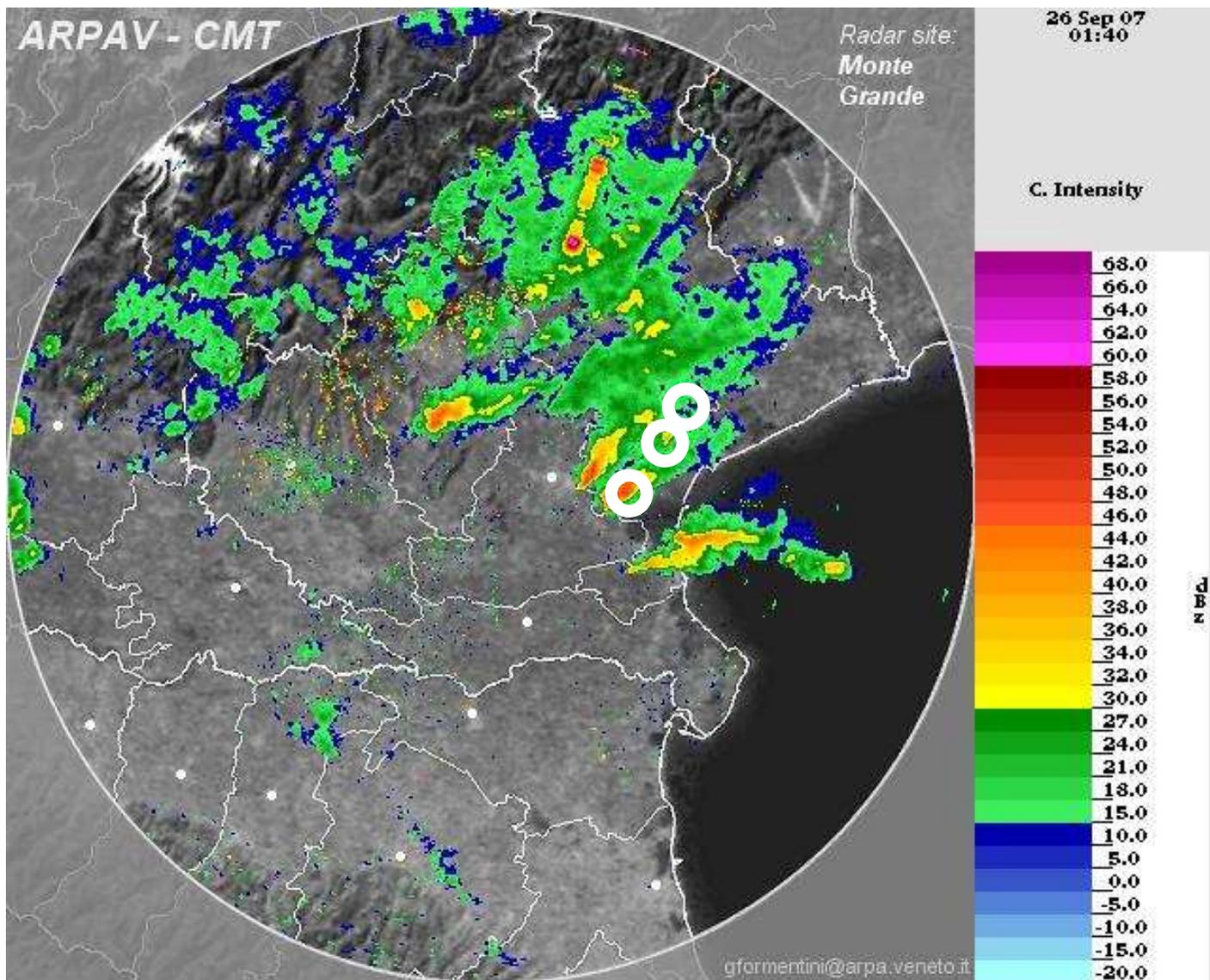
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Radar site:
Monte
Grande

26 Sep 07
01:40



Product Type: Base Section Corrected Intensity Upper : 30

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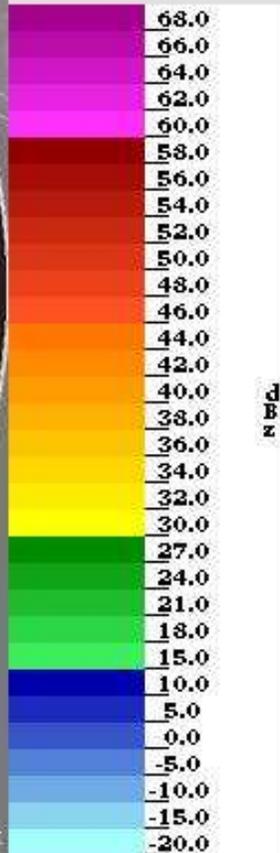
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
01:50



C. Intensity



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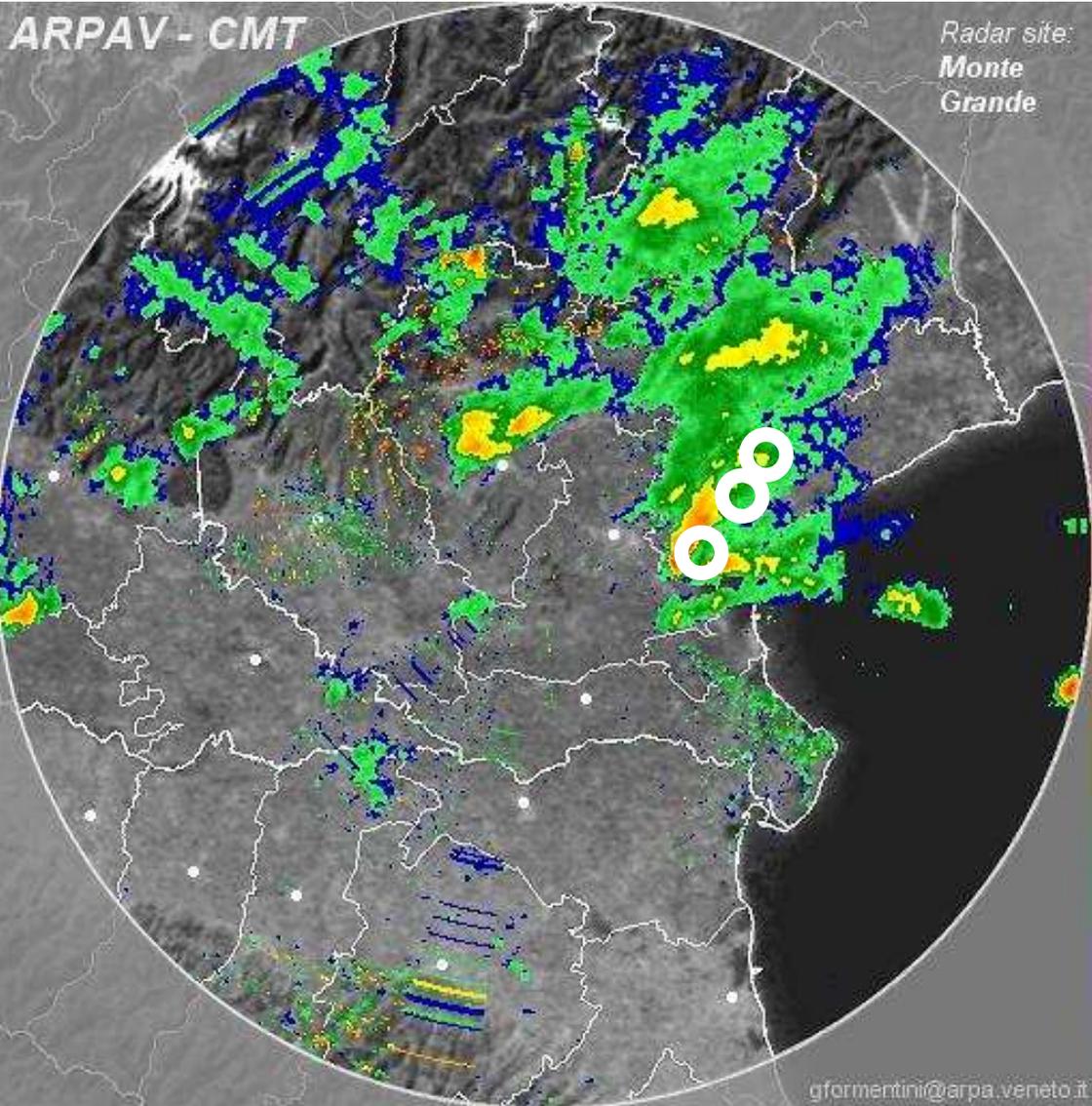
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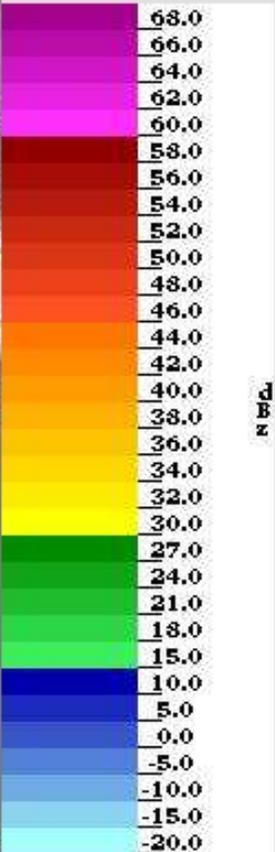
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
02:00



C. Intensity



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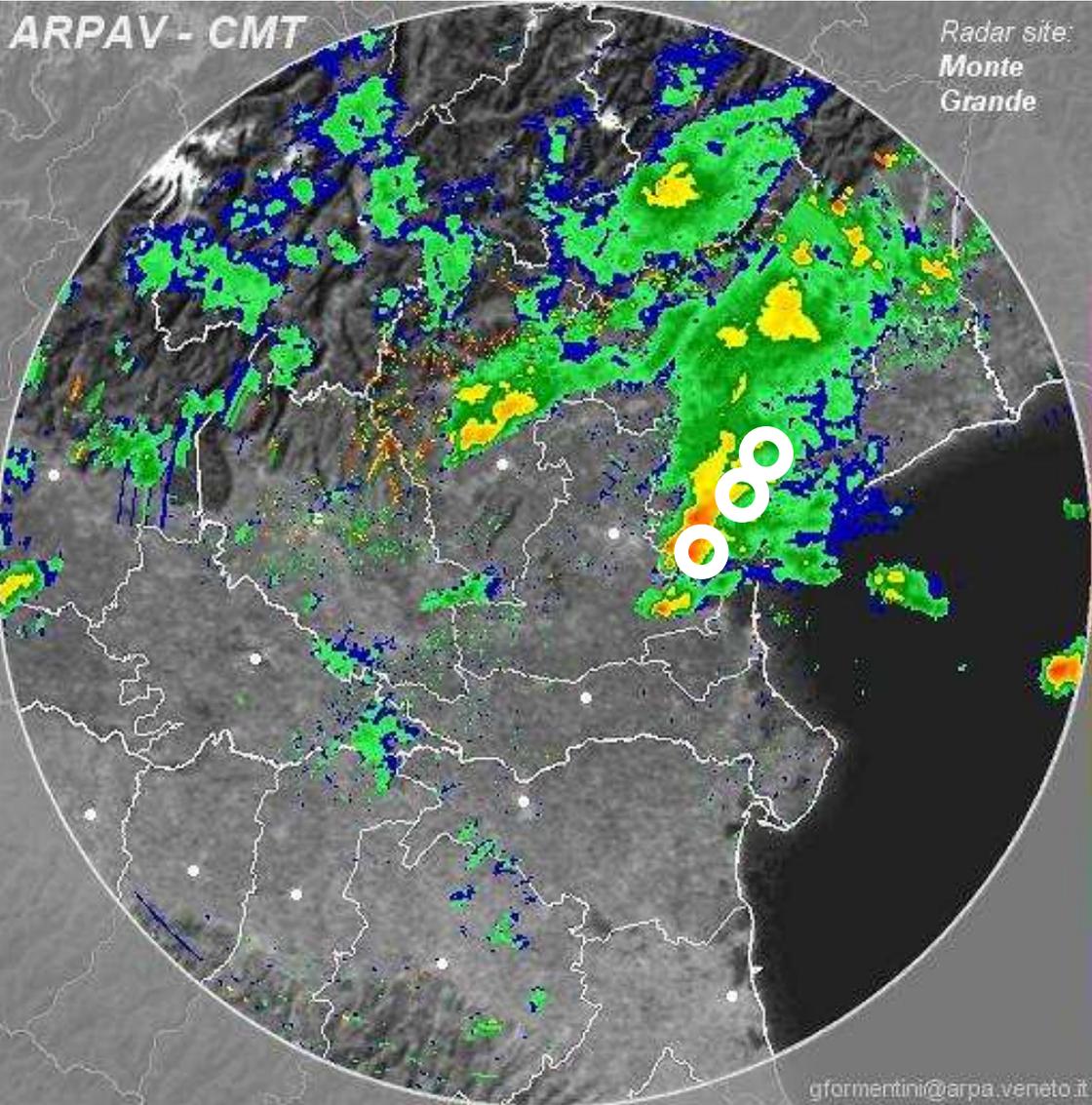
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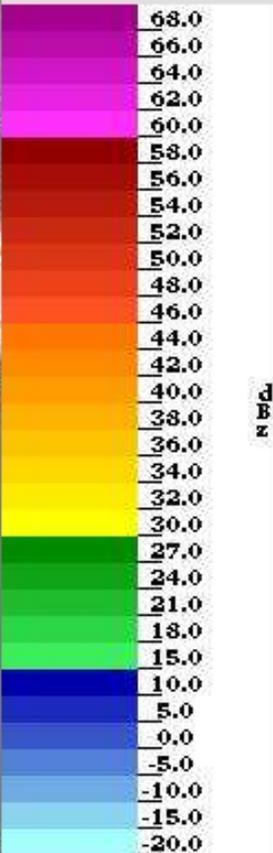
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
02:10



C. Intensity



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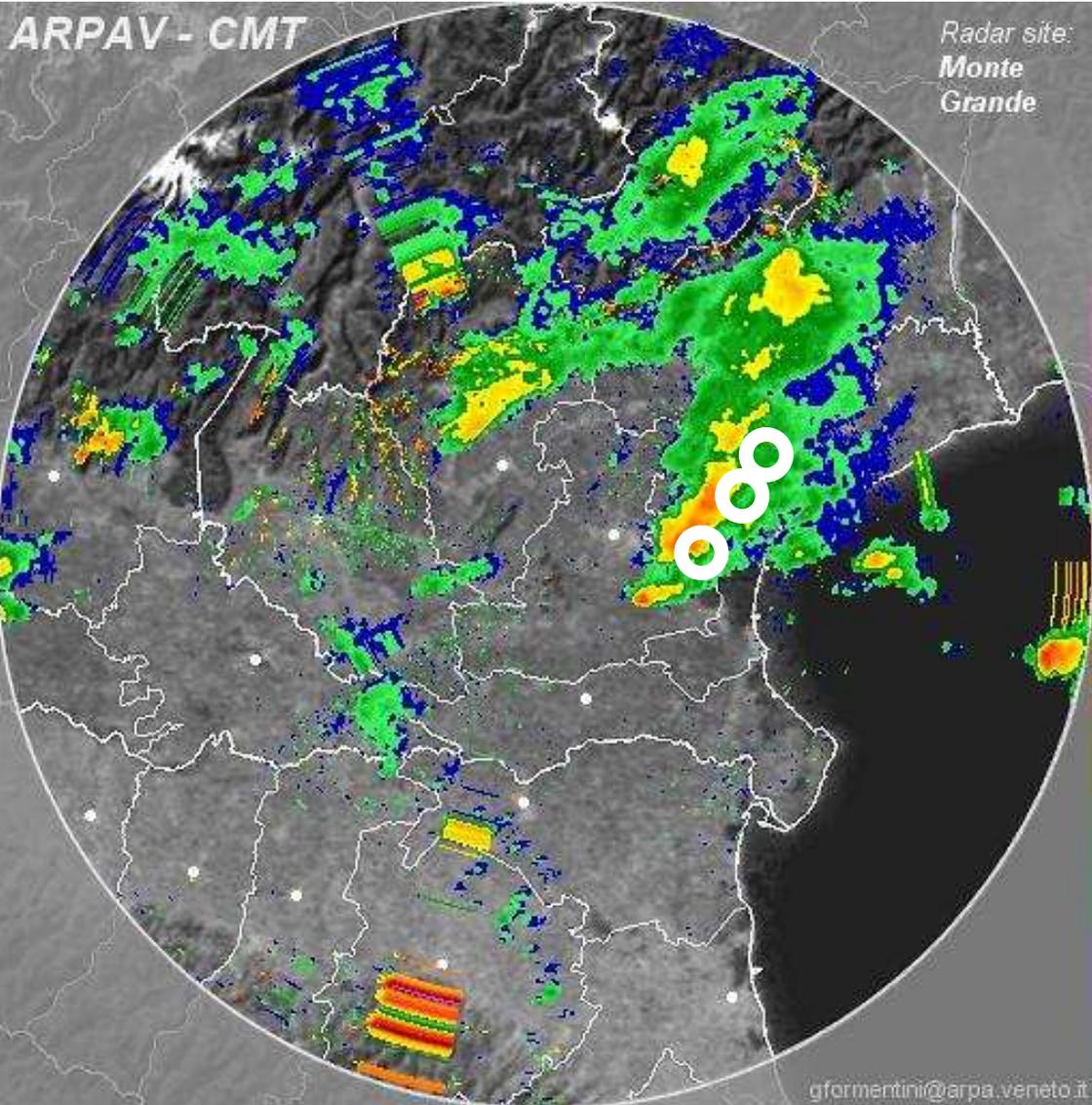
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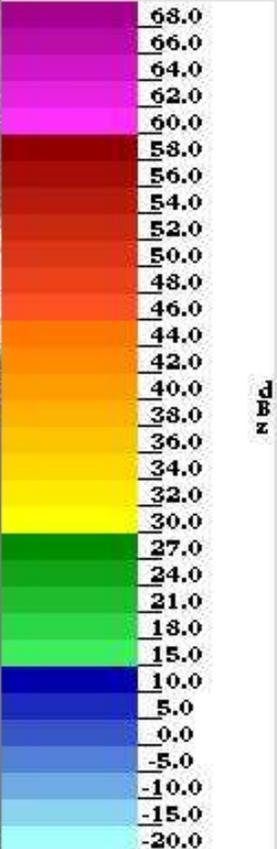
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
02:20



C. Intensity



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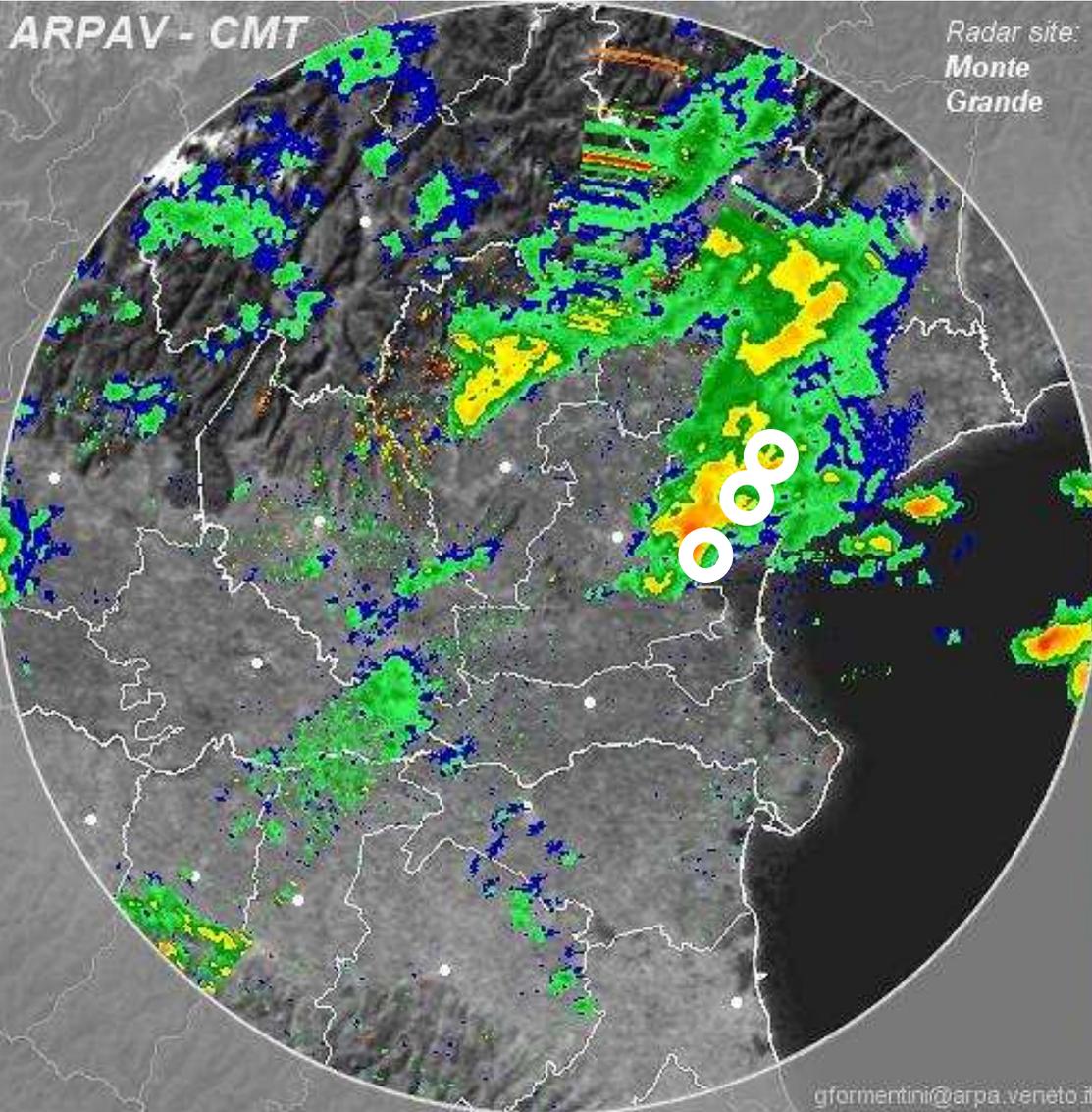
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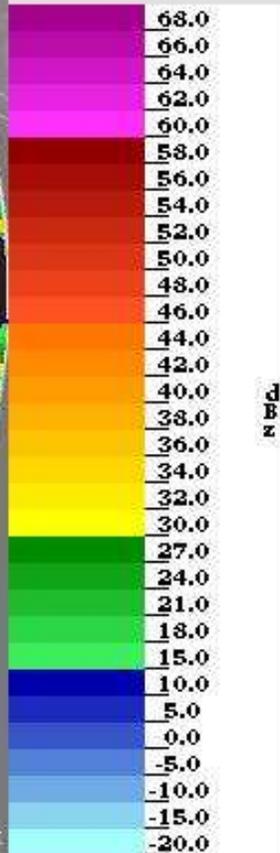
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
02:30



C. Intensity



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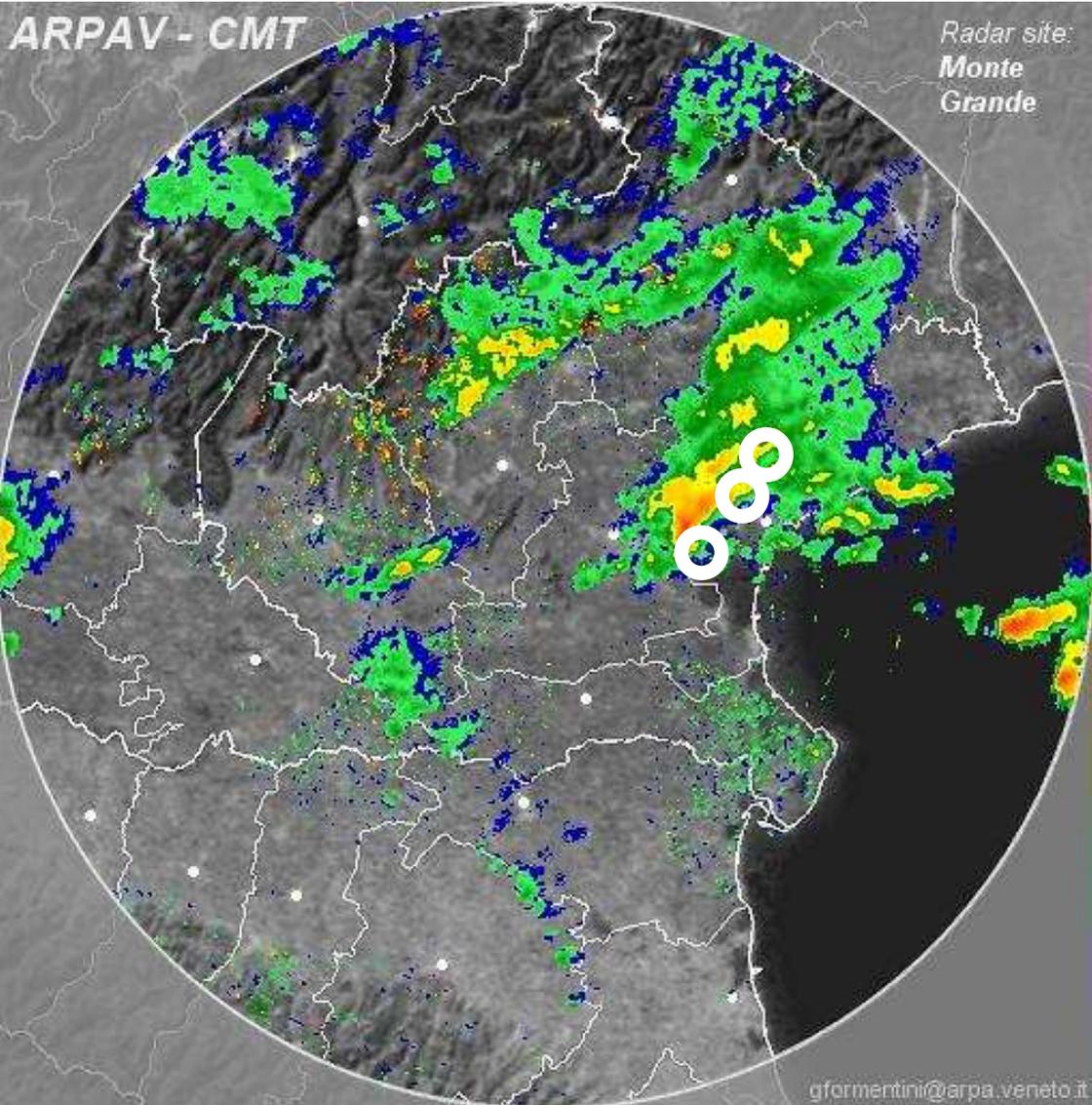
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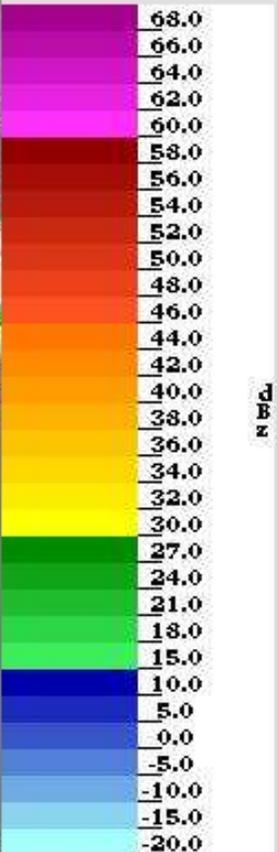
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
02:40



C. Intensity



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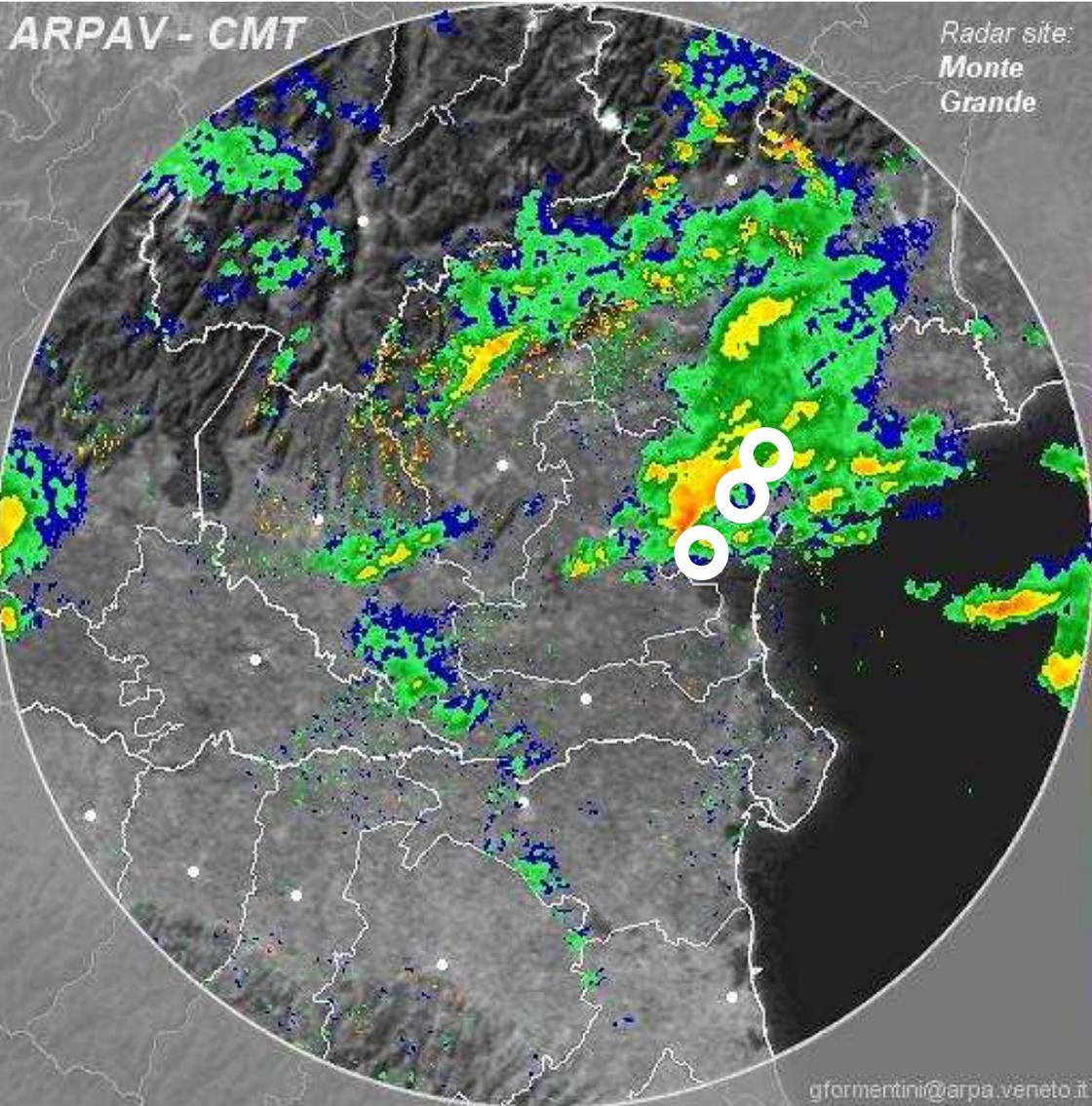
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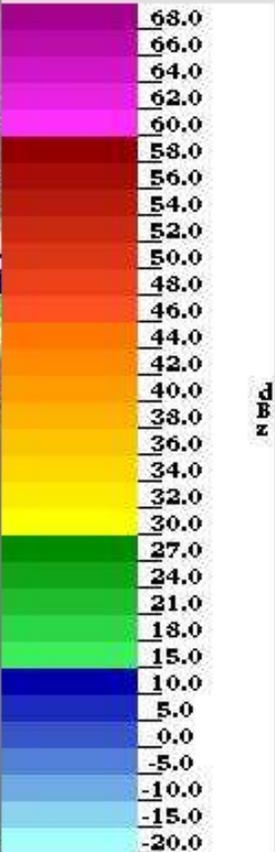
ARPAV - CMT

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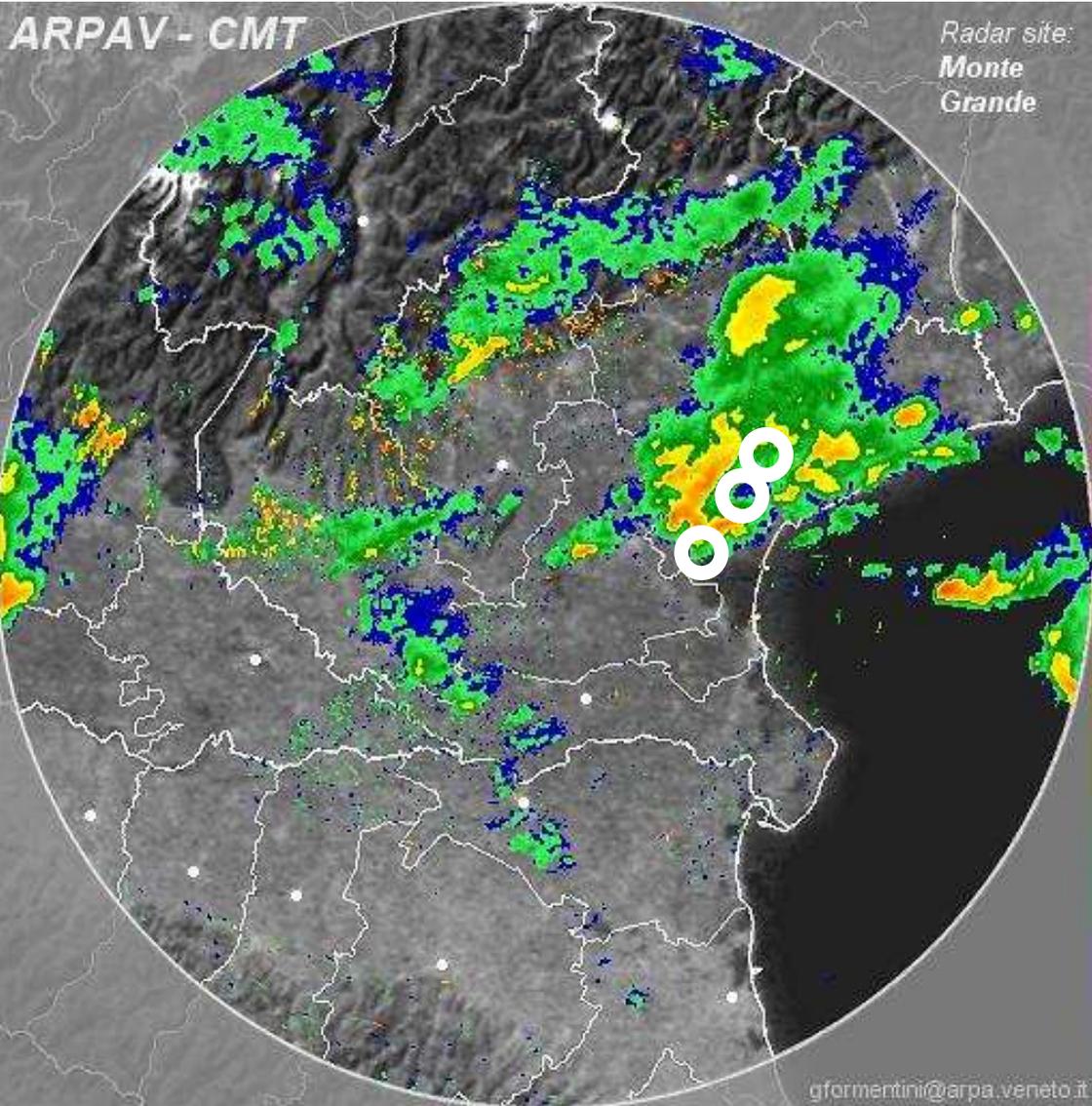
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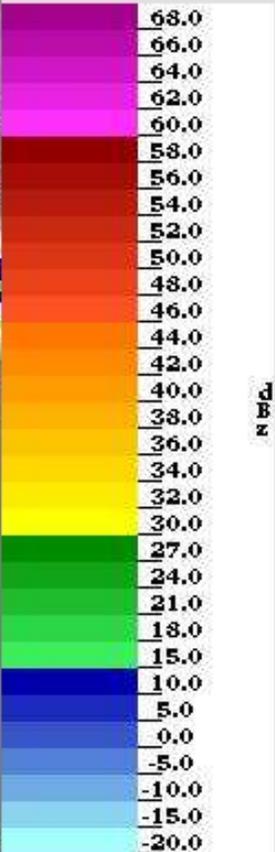
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
03:00



C. Intensity



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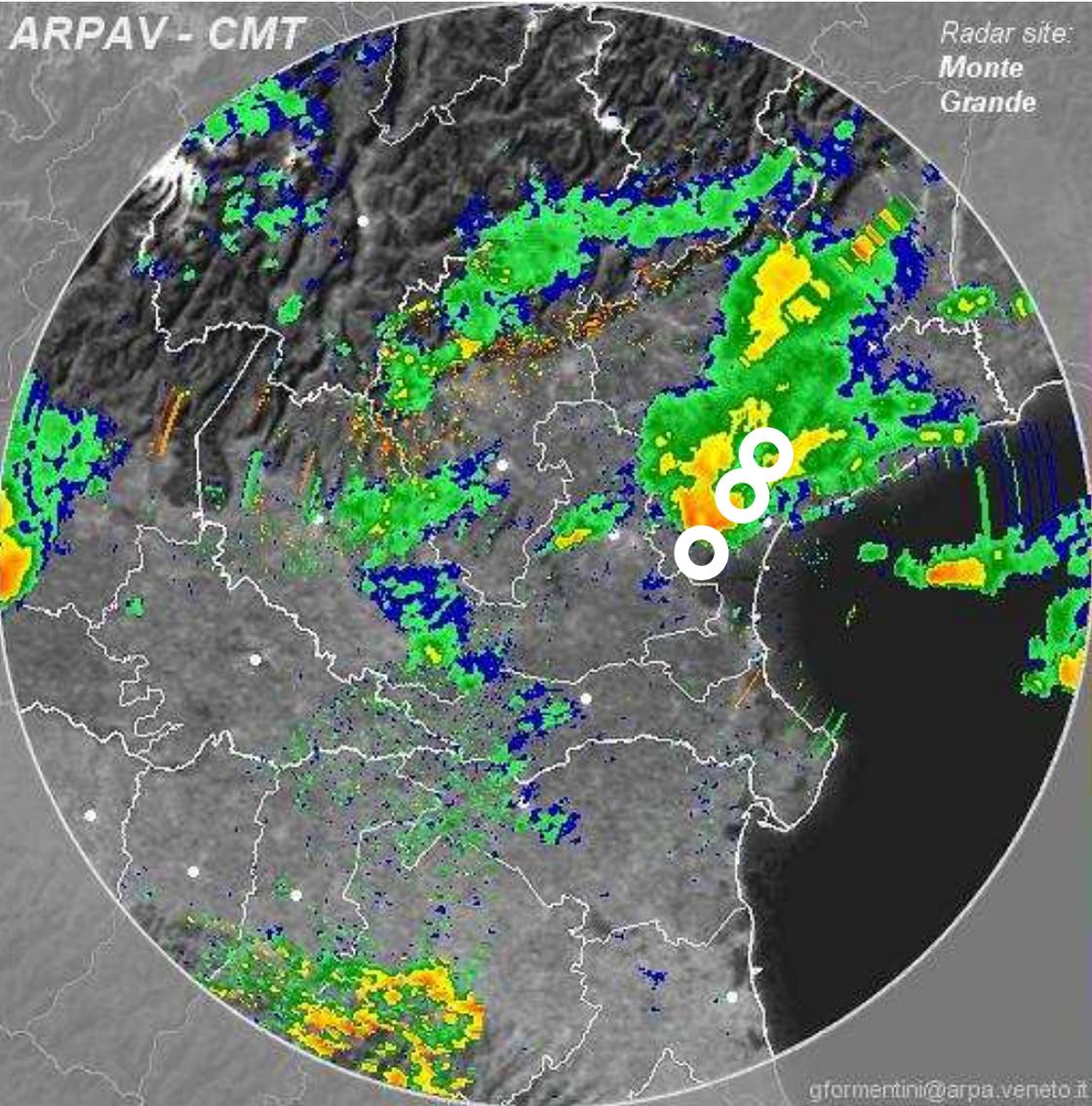
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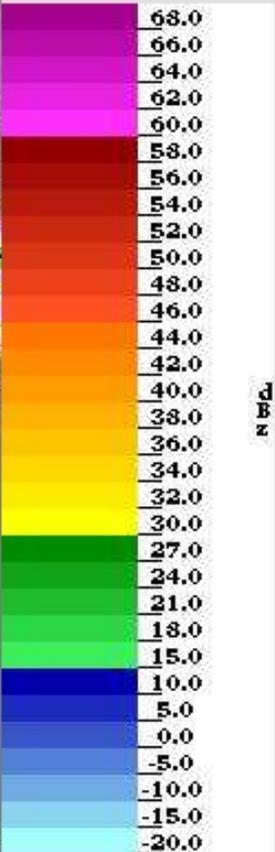
ARPAV - CMT

Radar site:
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Grande

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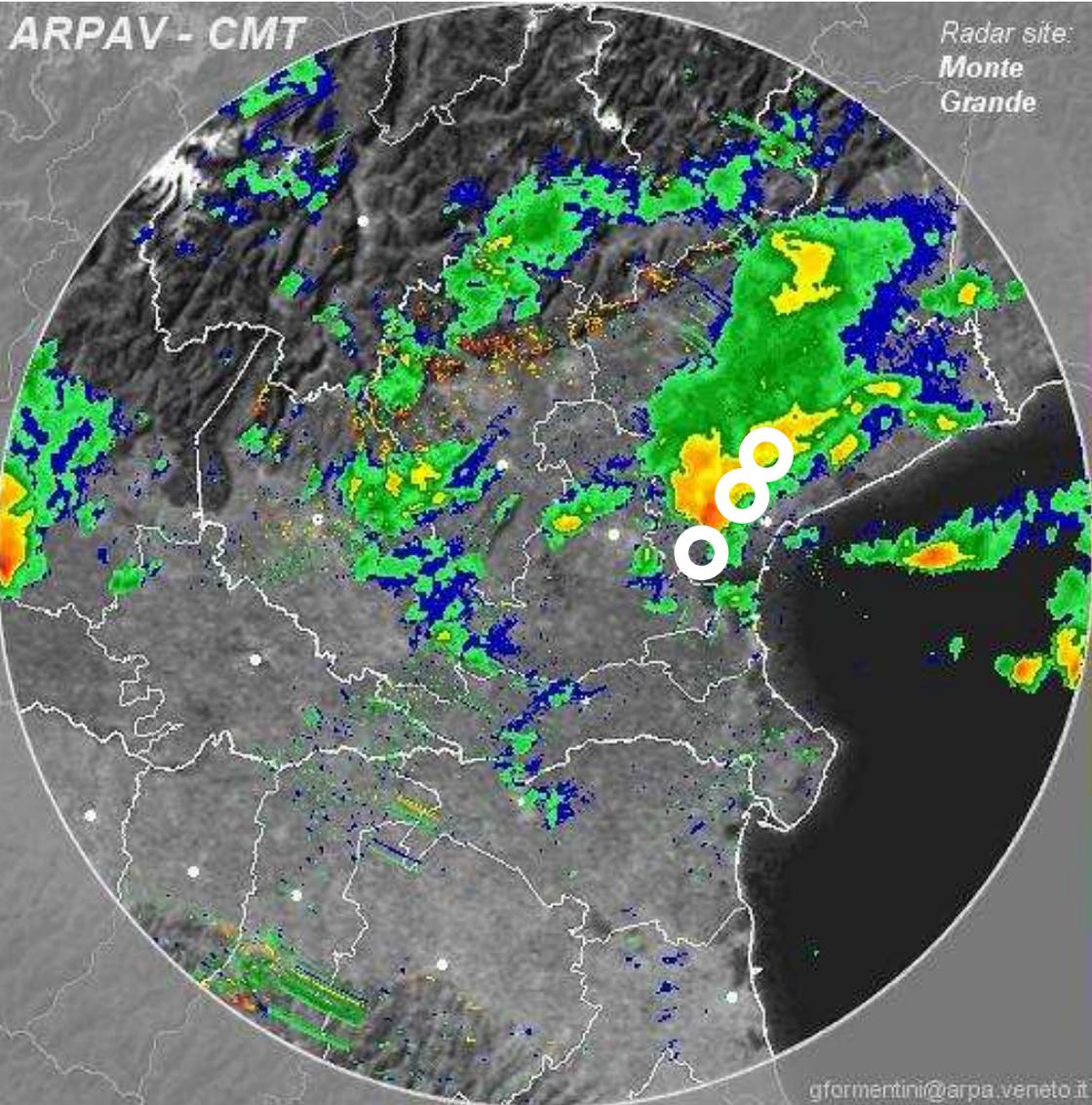
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| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

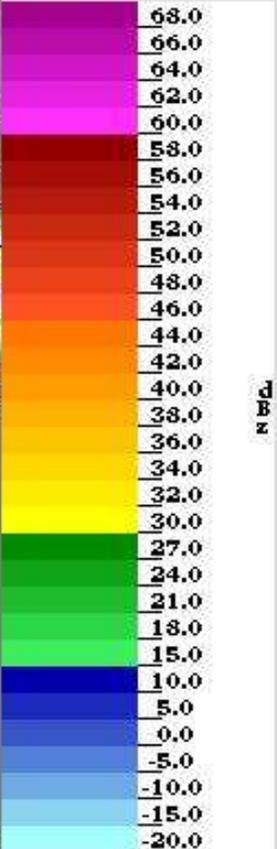
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
03:20



C. Intensity



gformentini@arpa.veneto.it

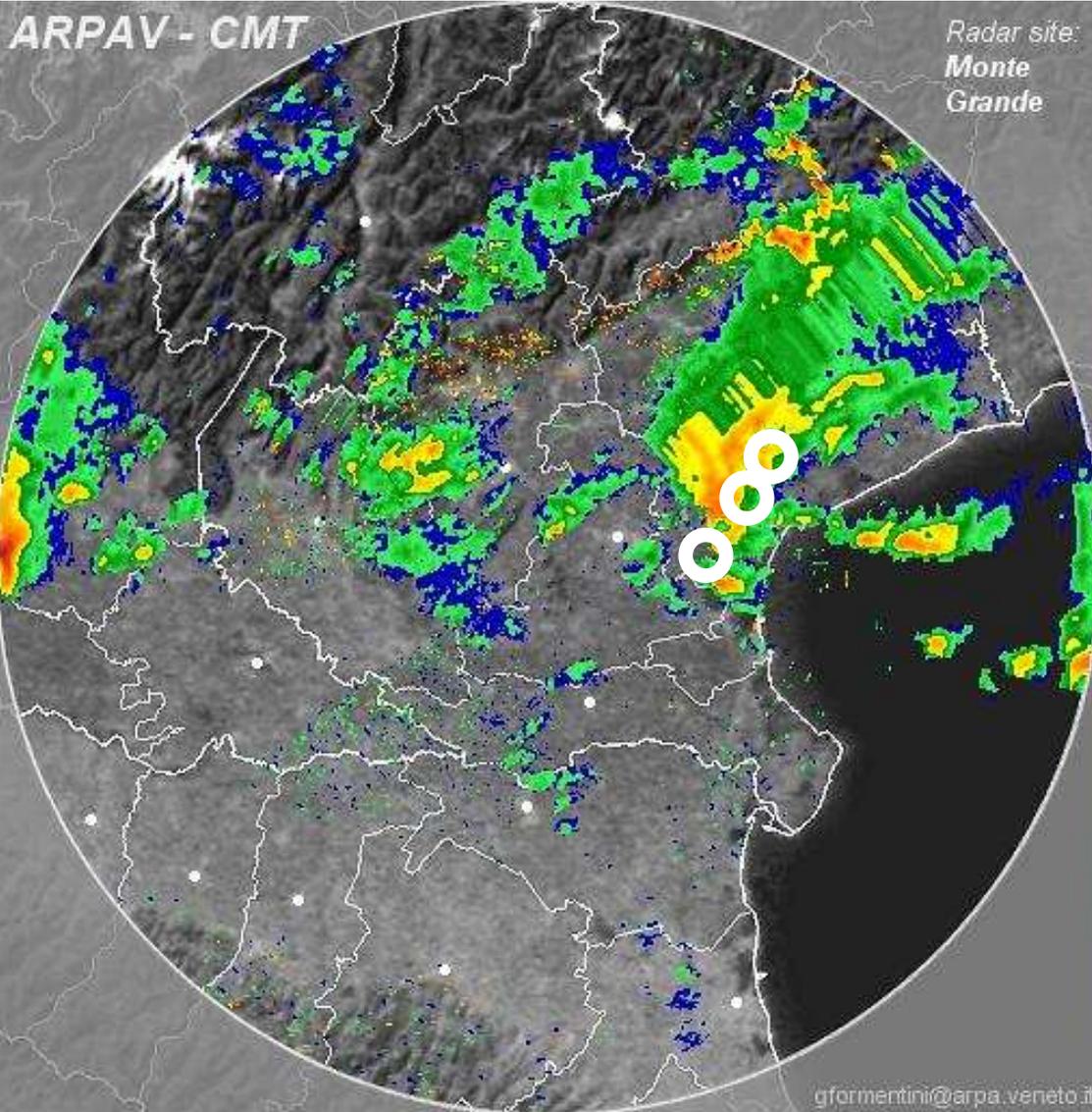
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

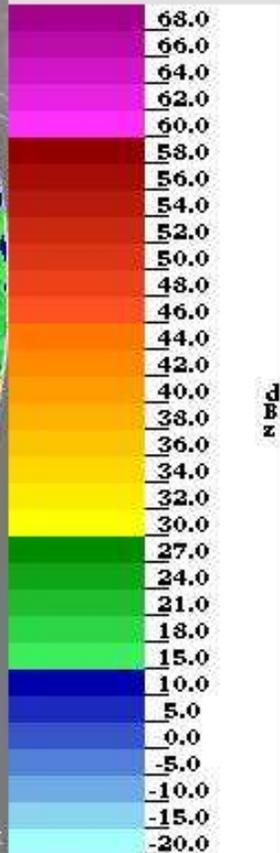
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
03:30



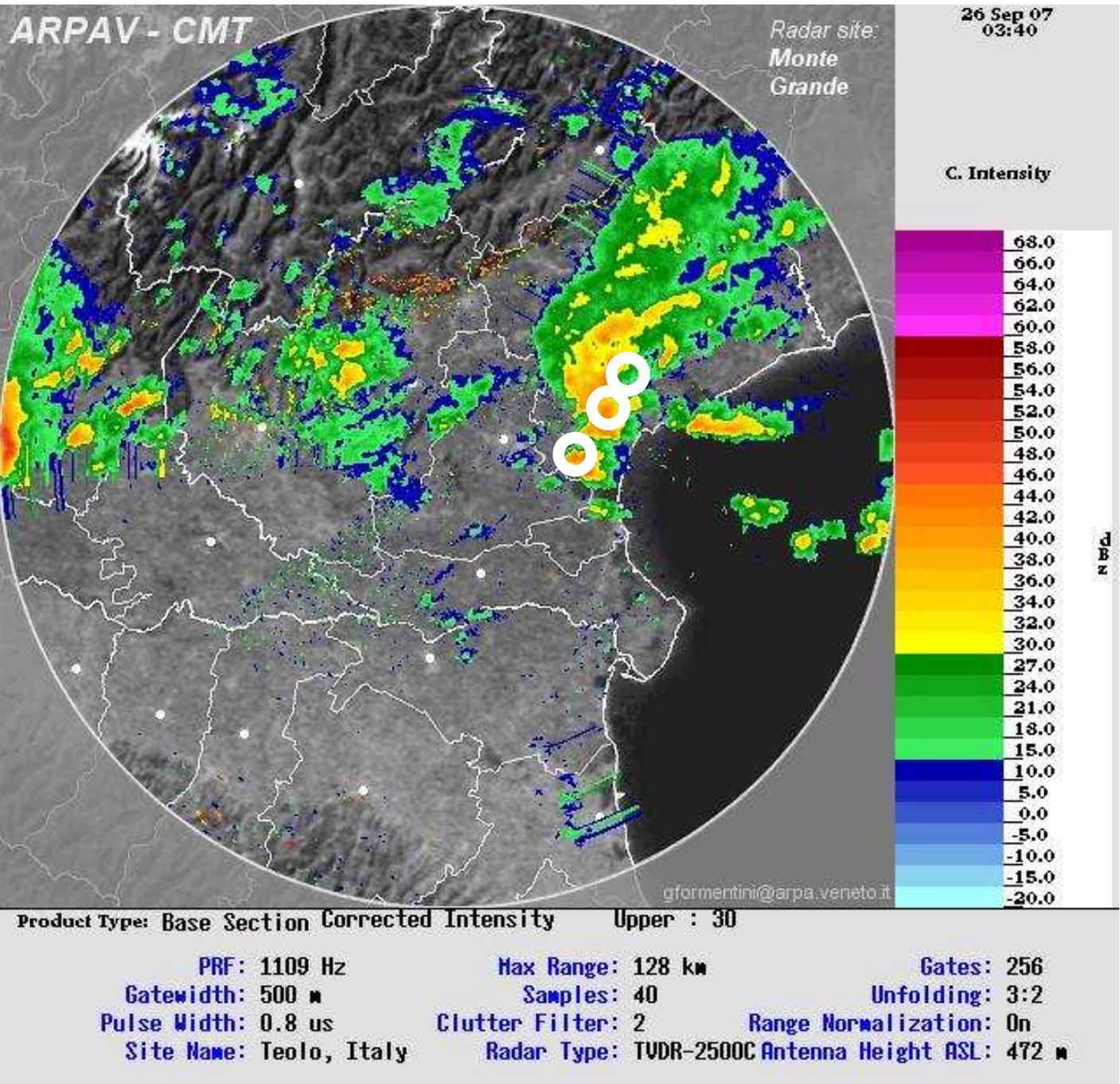
C. Intensity



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Product Type: Base Section Corrected Intensity Upper : 30

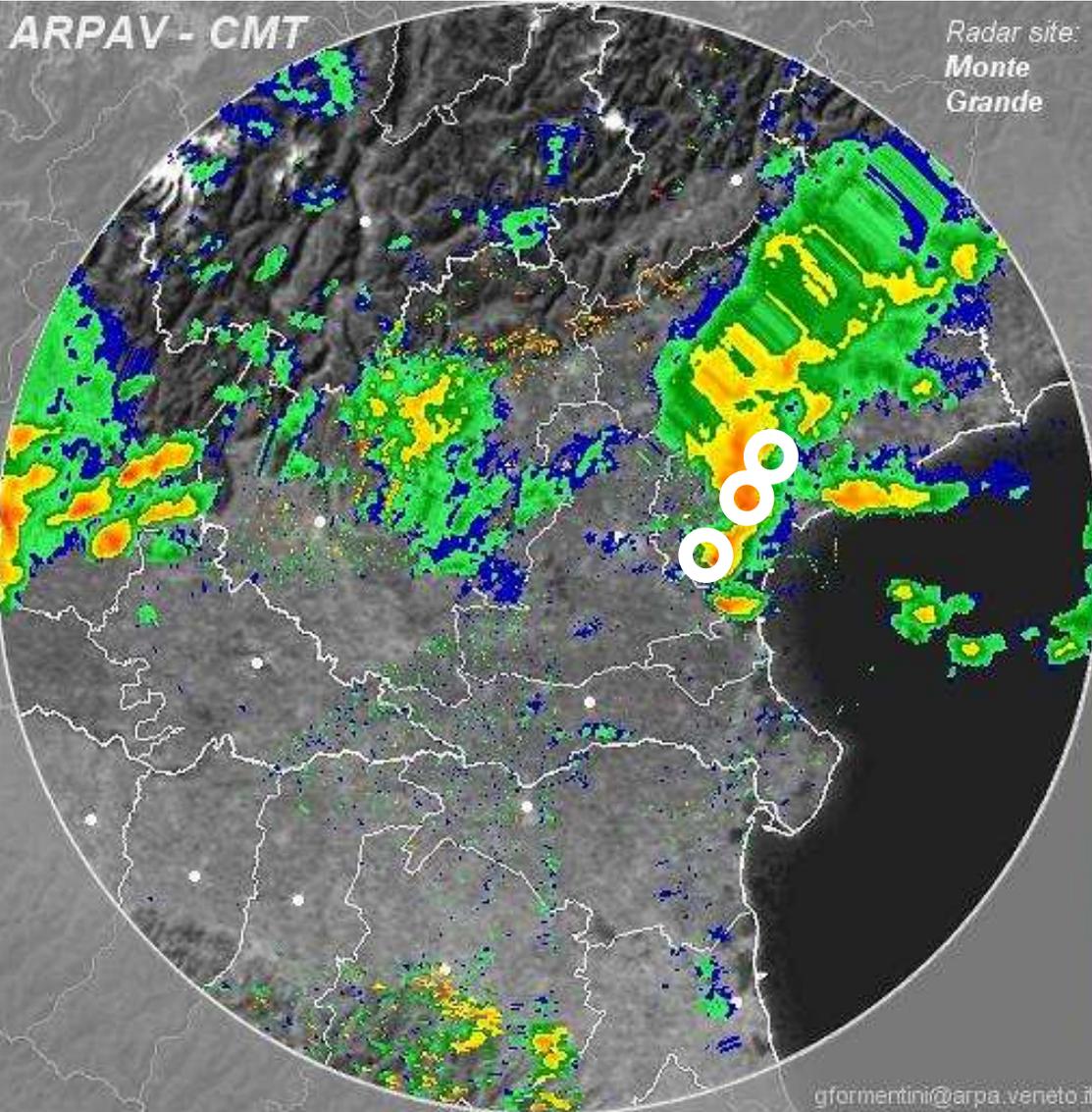
| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |



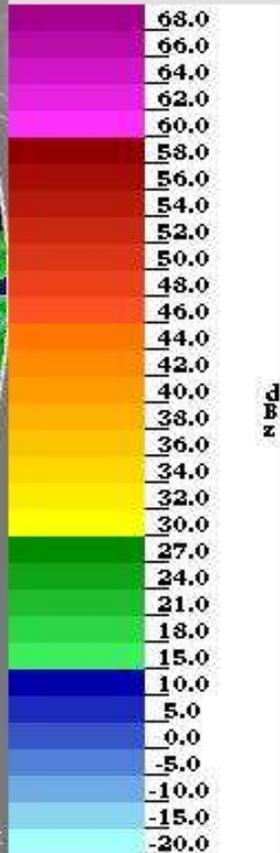
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
03:50



C. Intensity



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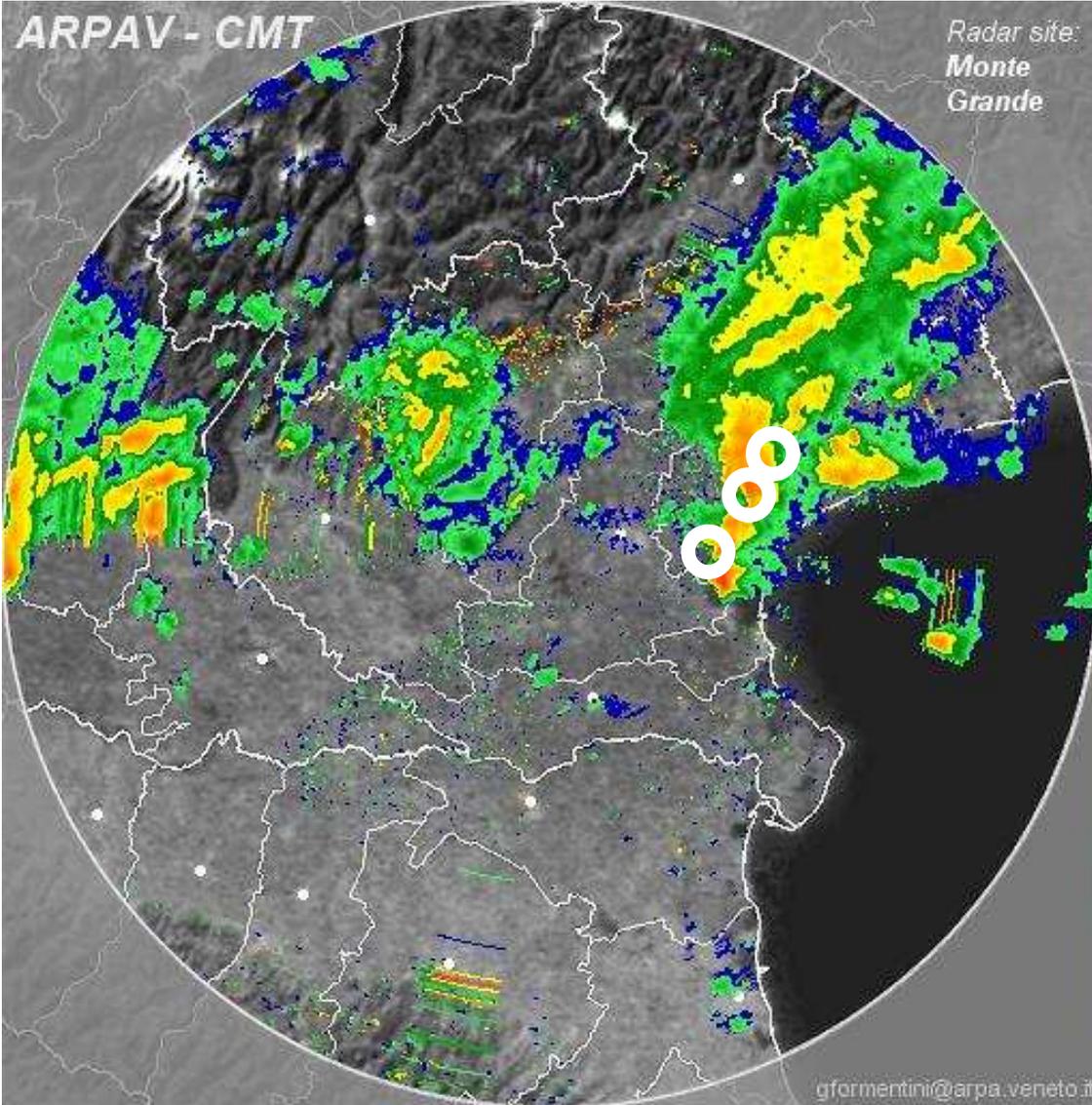
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

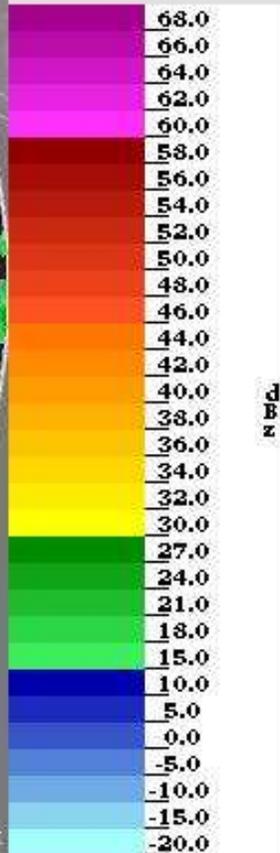
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
04:00



C. Intensity



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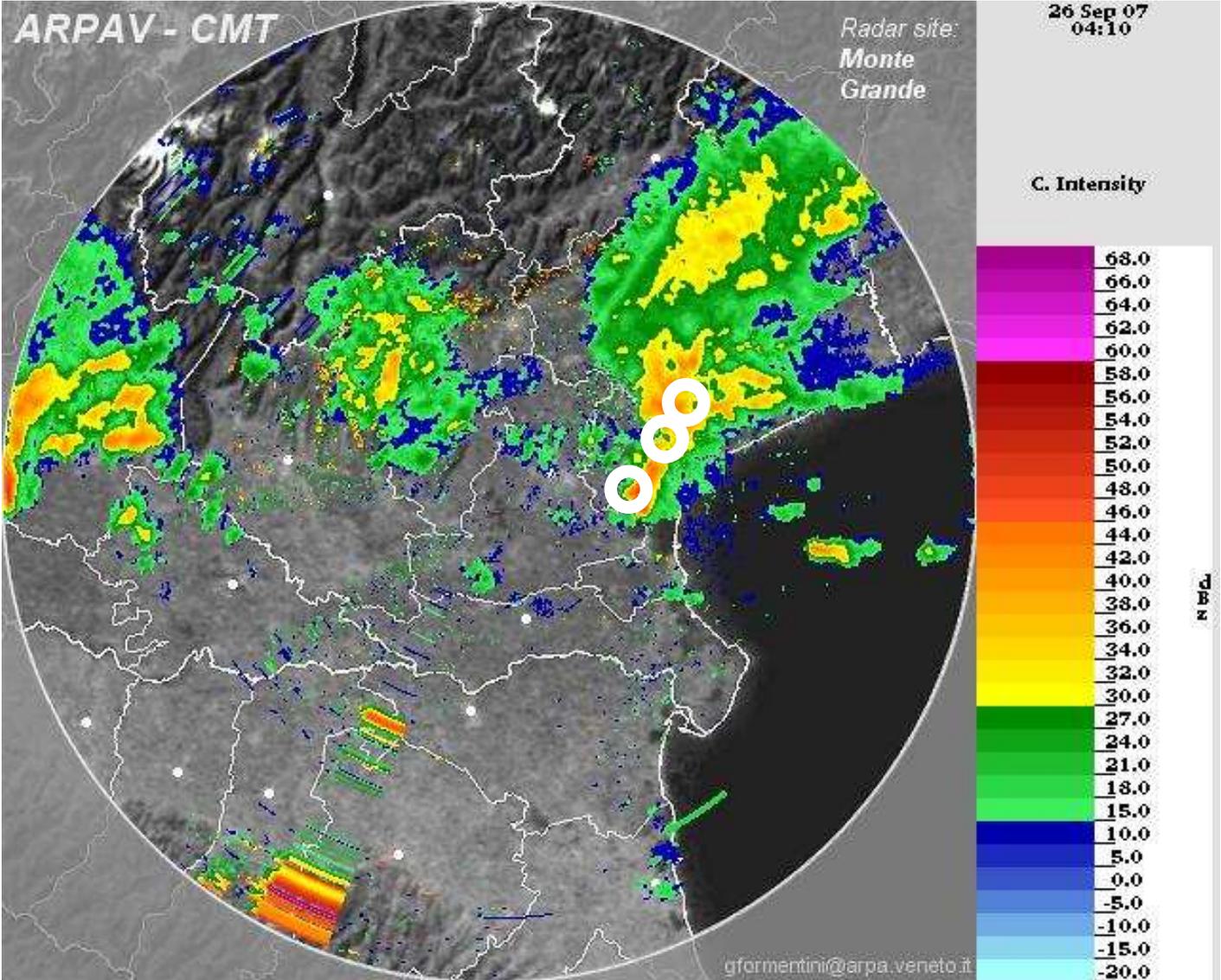
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

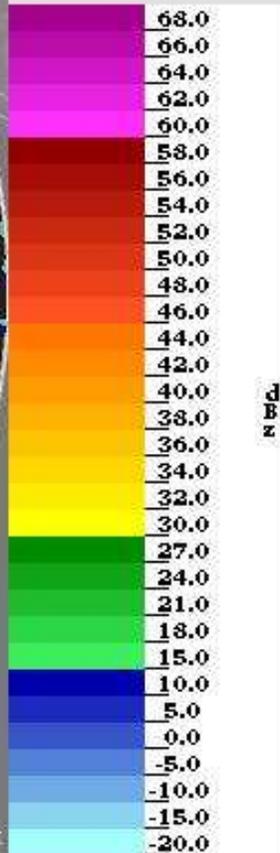
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
04:10



C. Intensity



mm/h

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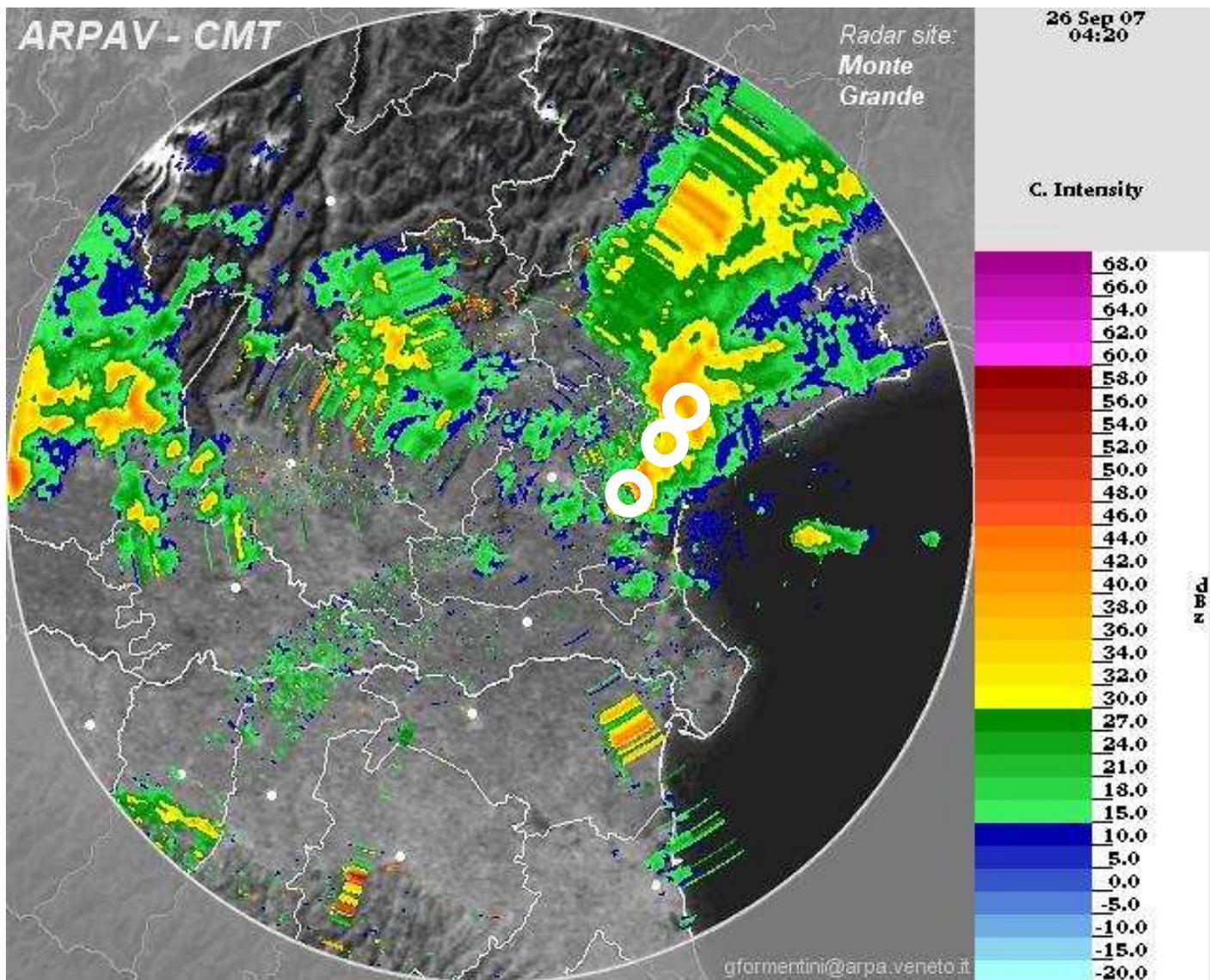
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
04:20



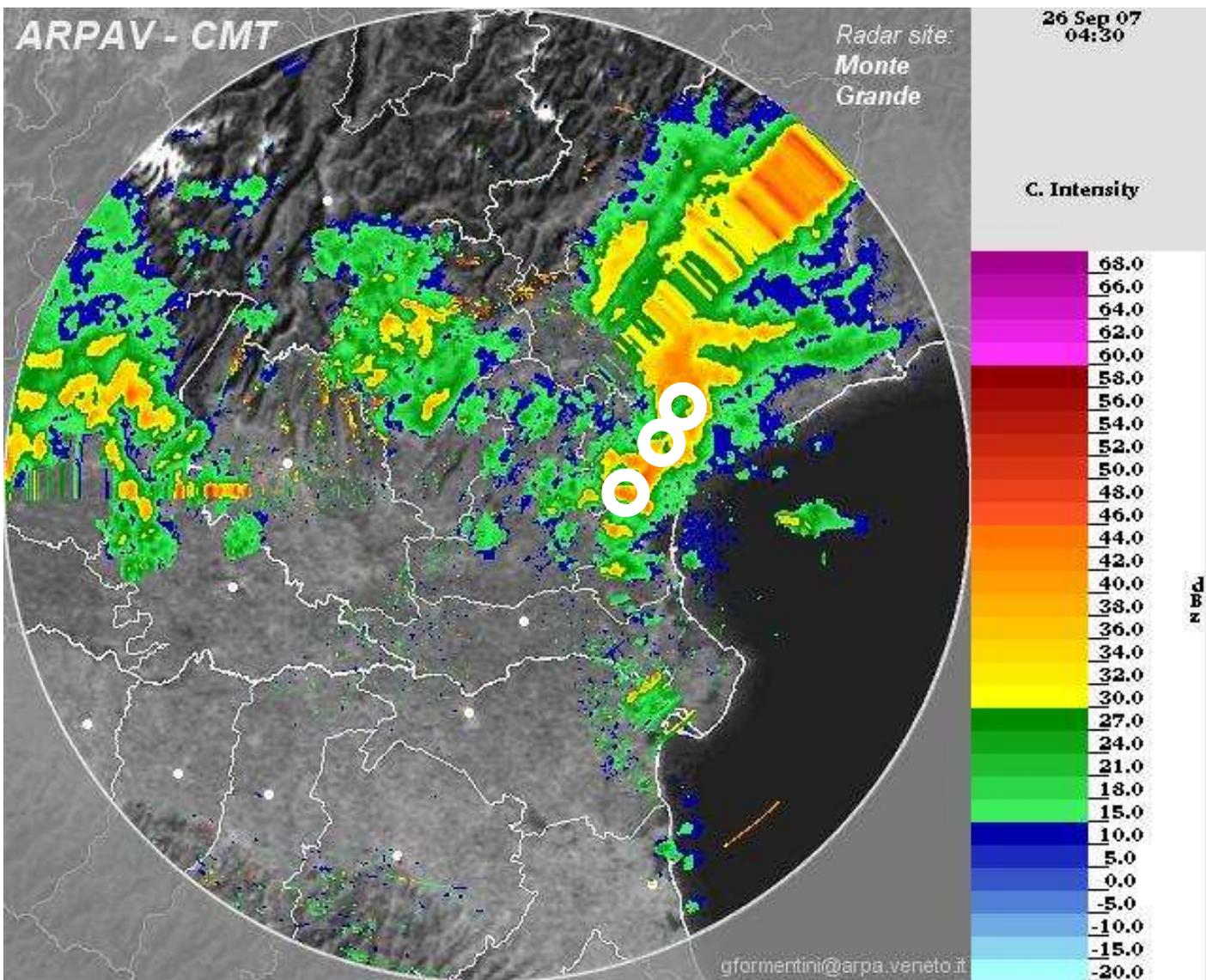
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
04:30



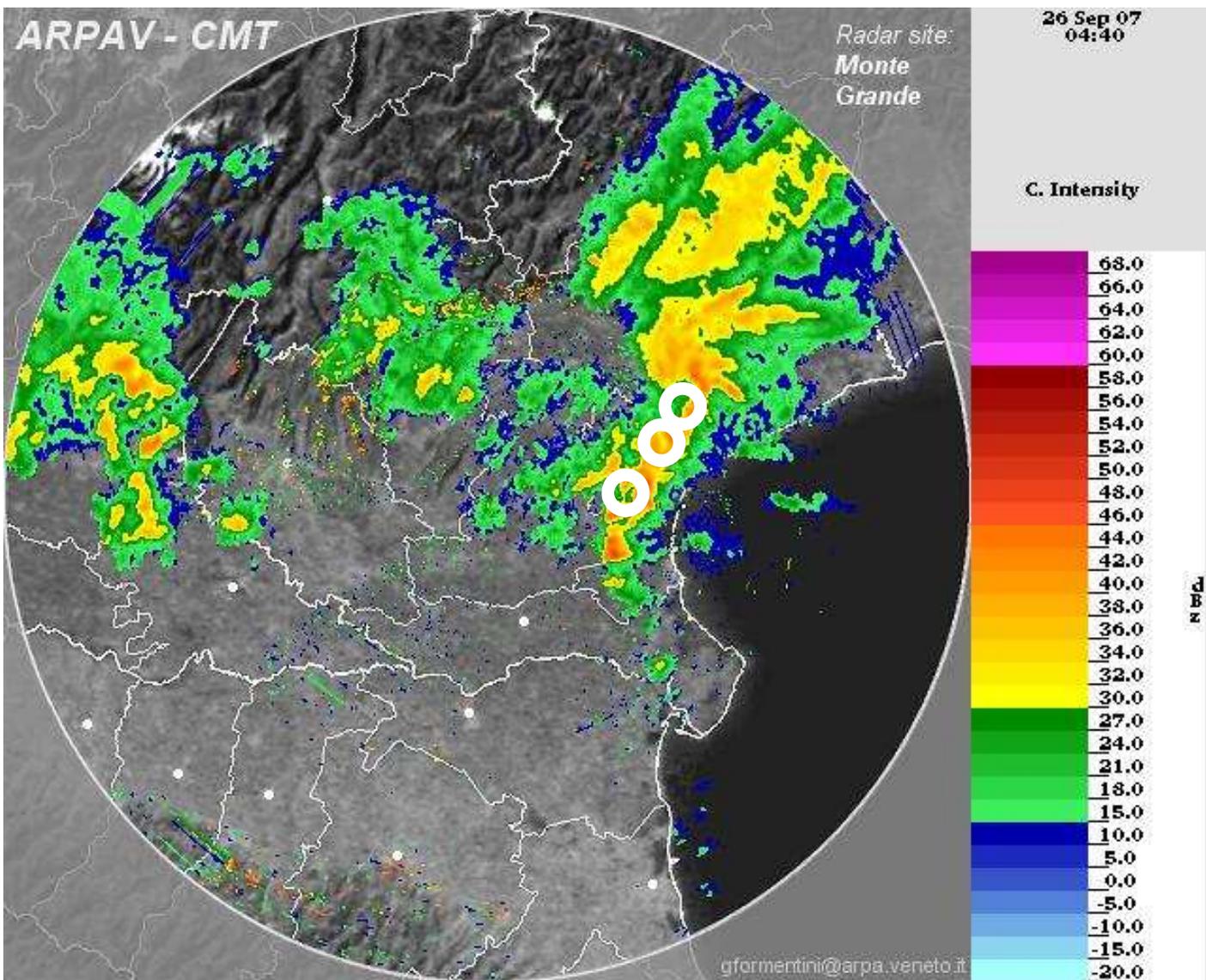
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
04:40



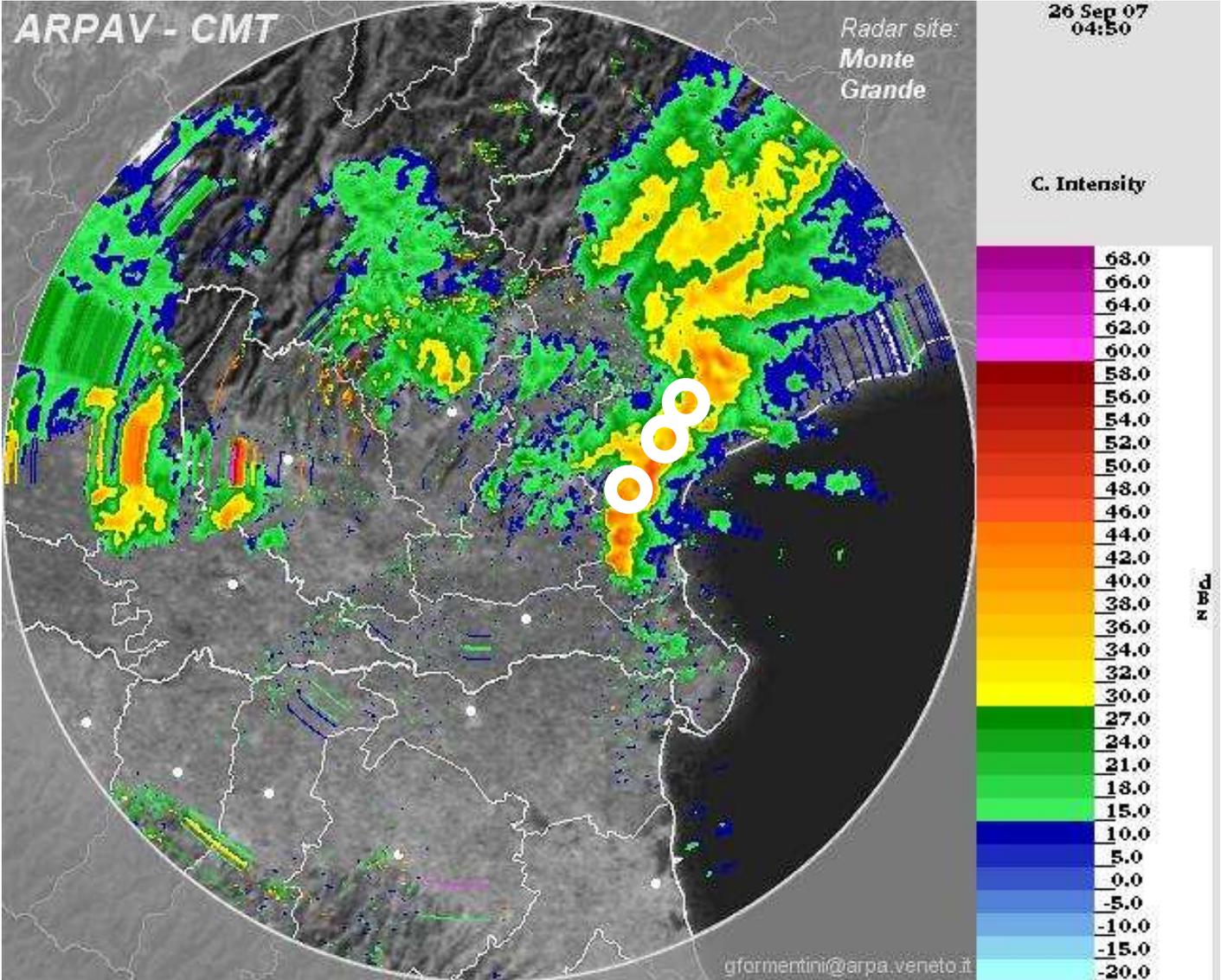
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

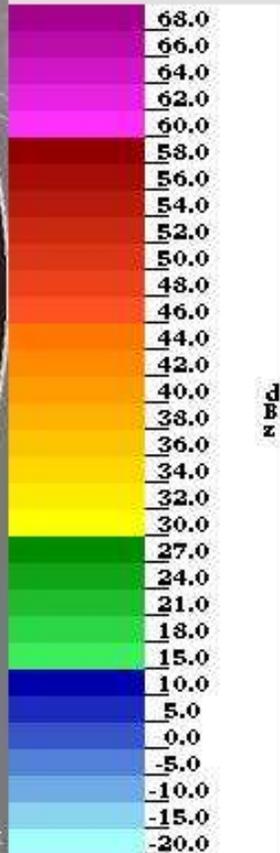
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
04:50



C. Intensity



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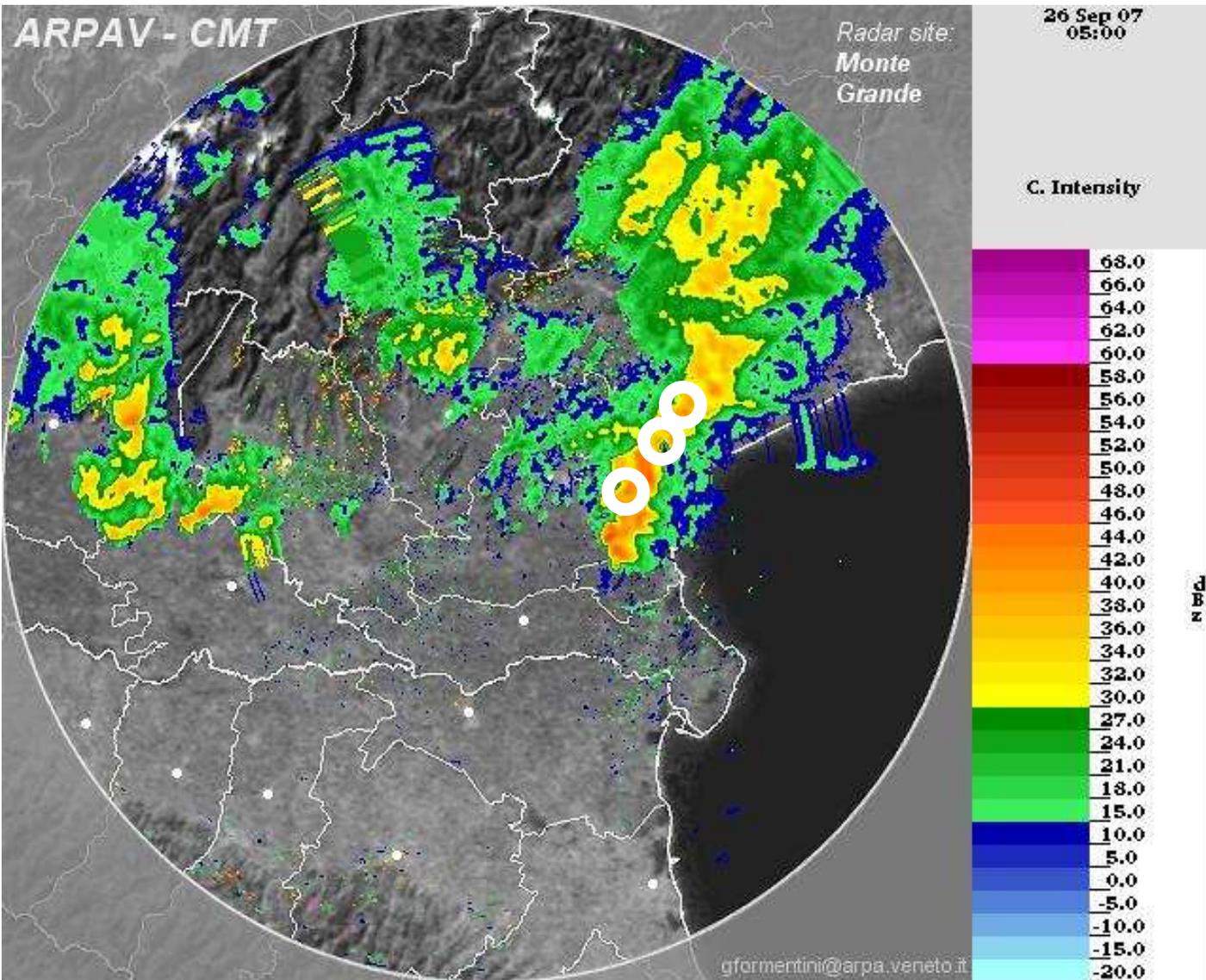
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
05:00



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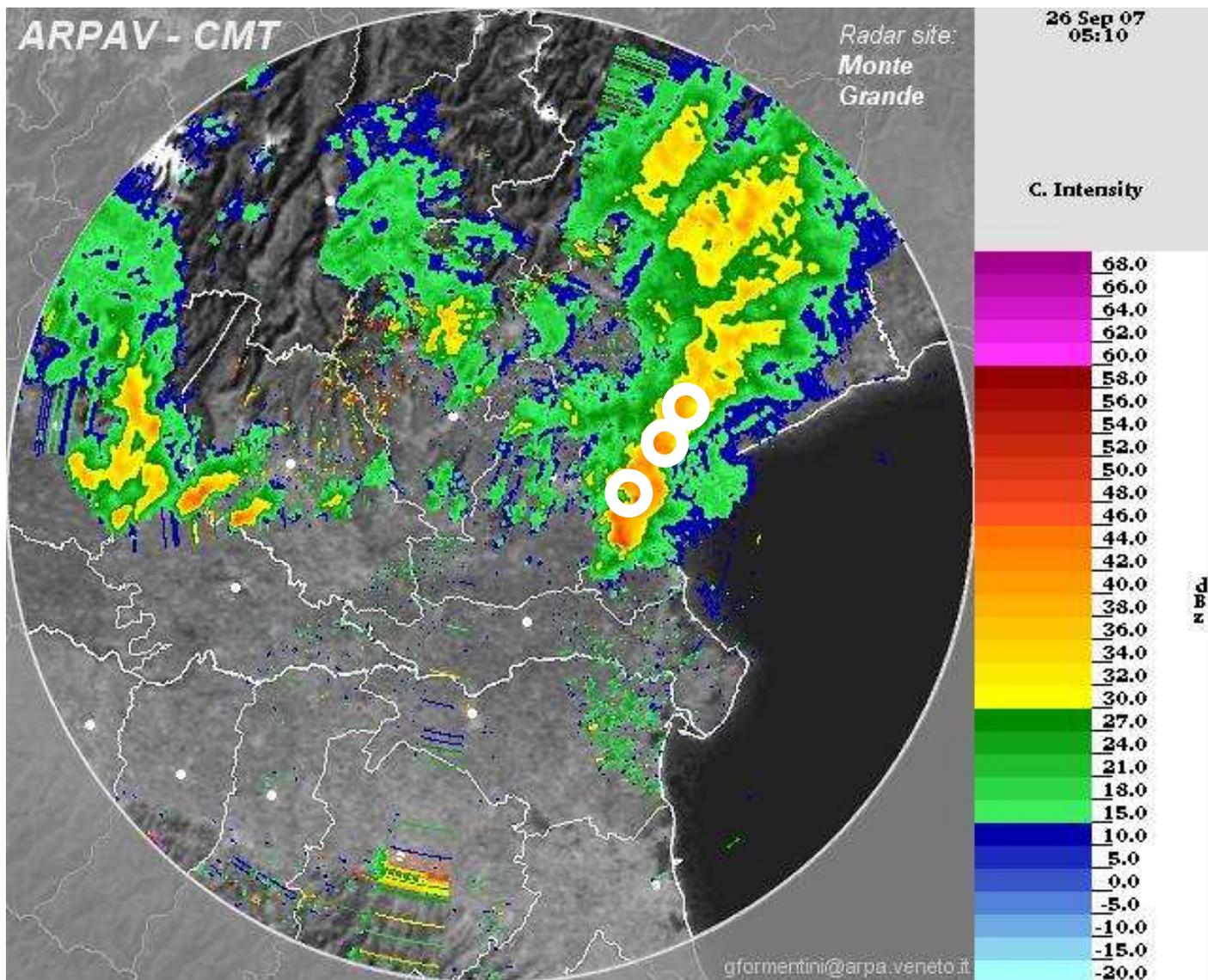
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| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
05:10



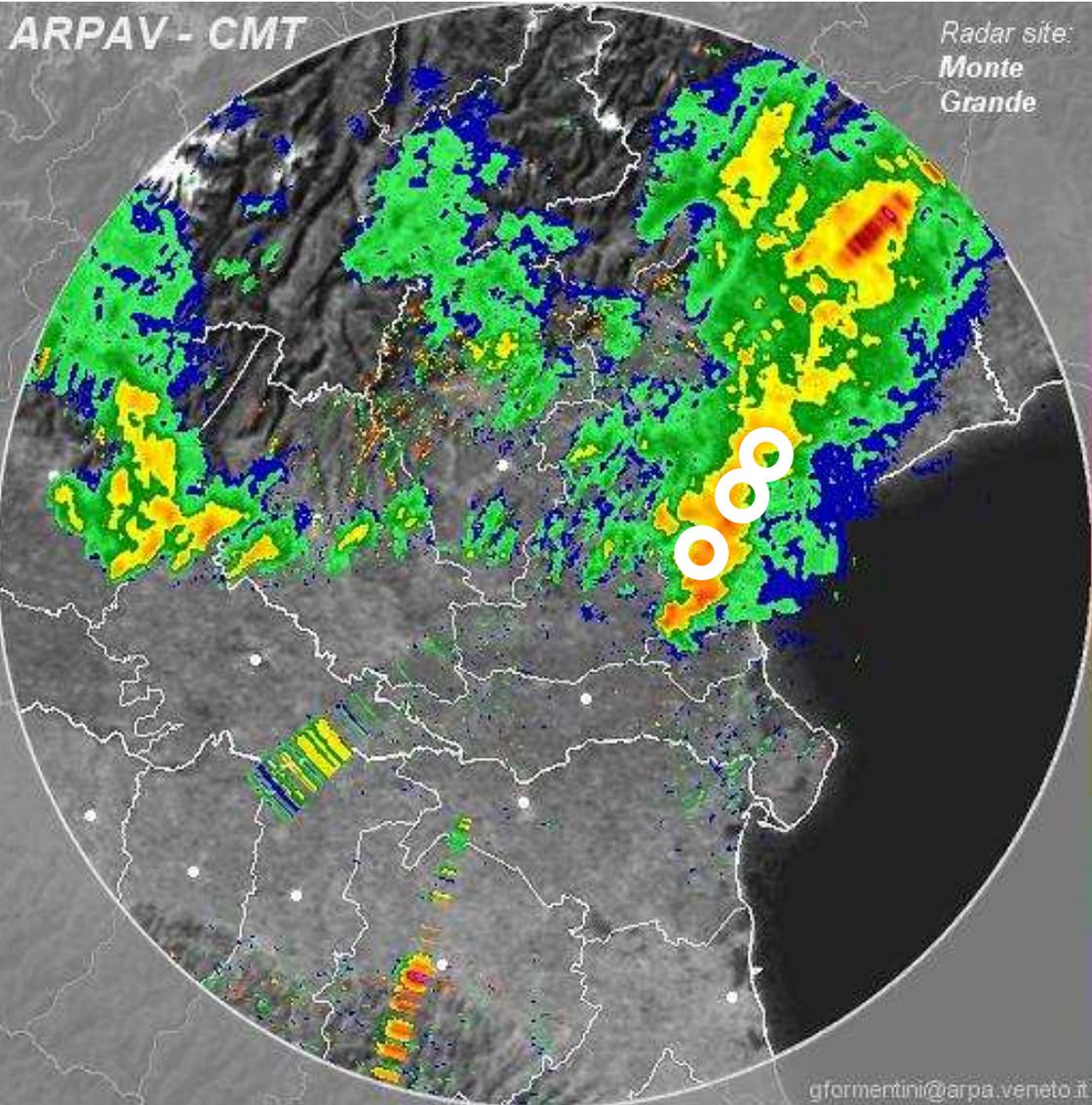
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

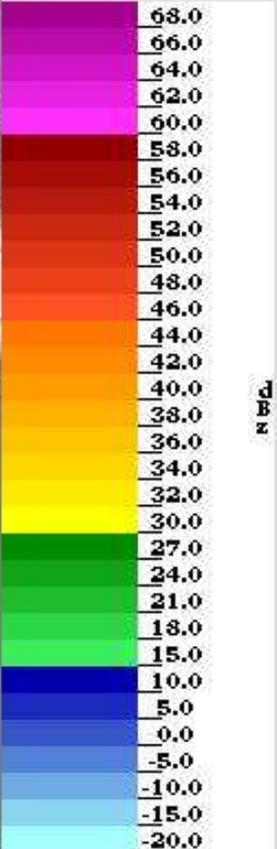
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
05:20



C. Intensity



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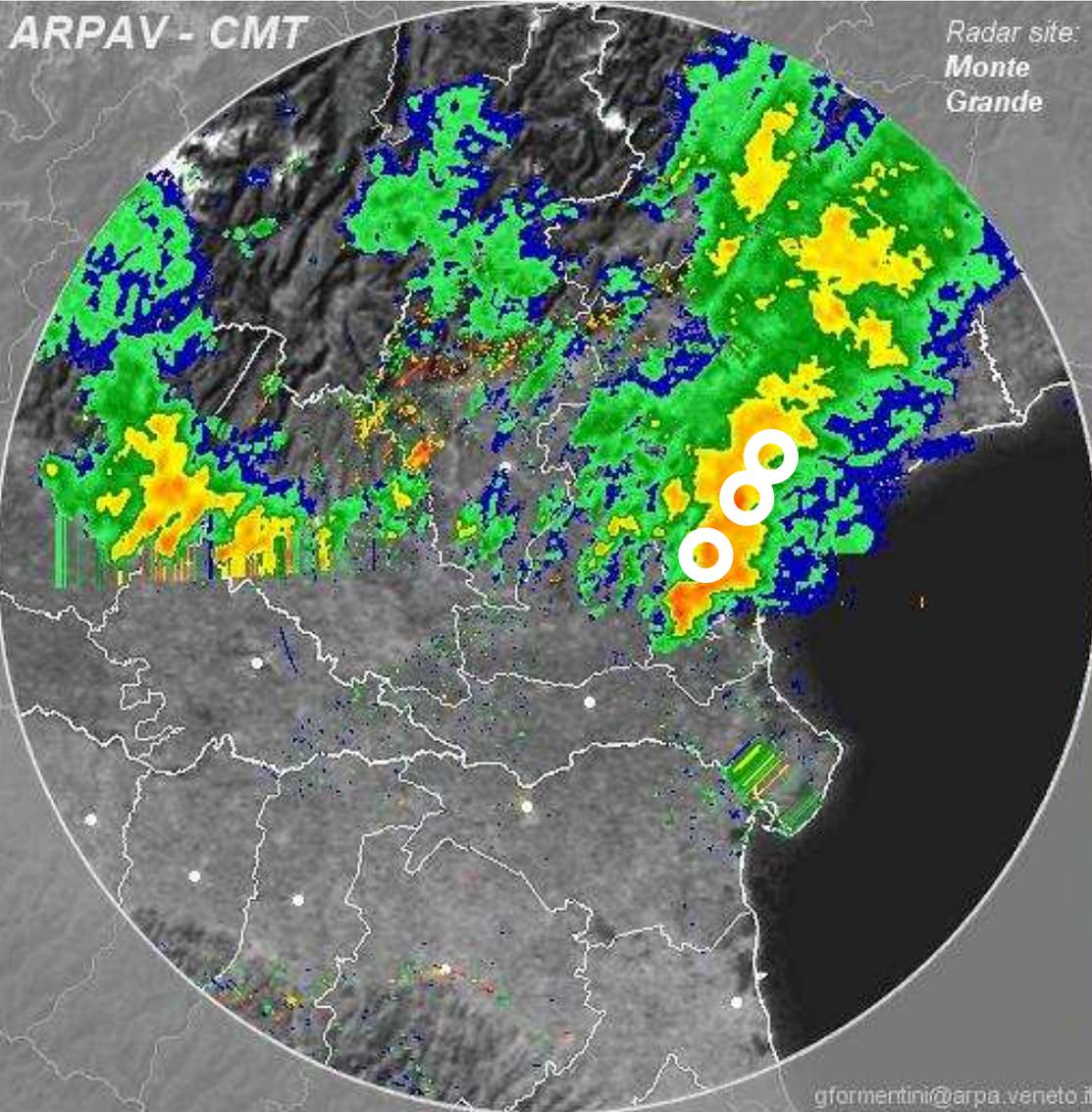
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

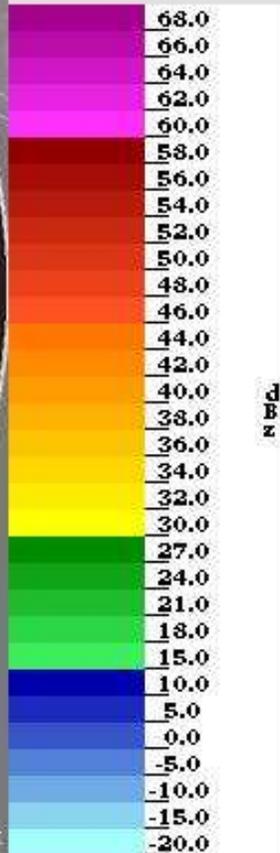
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
05:30



C. Intensity



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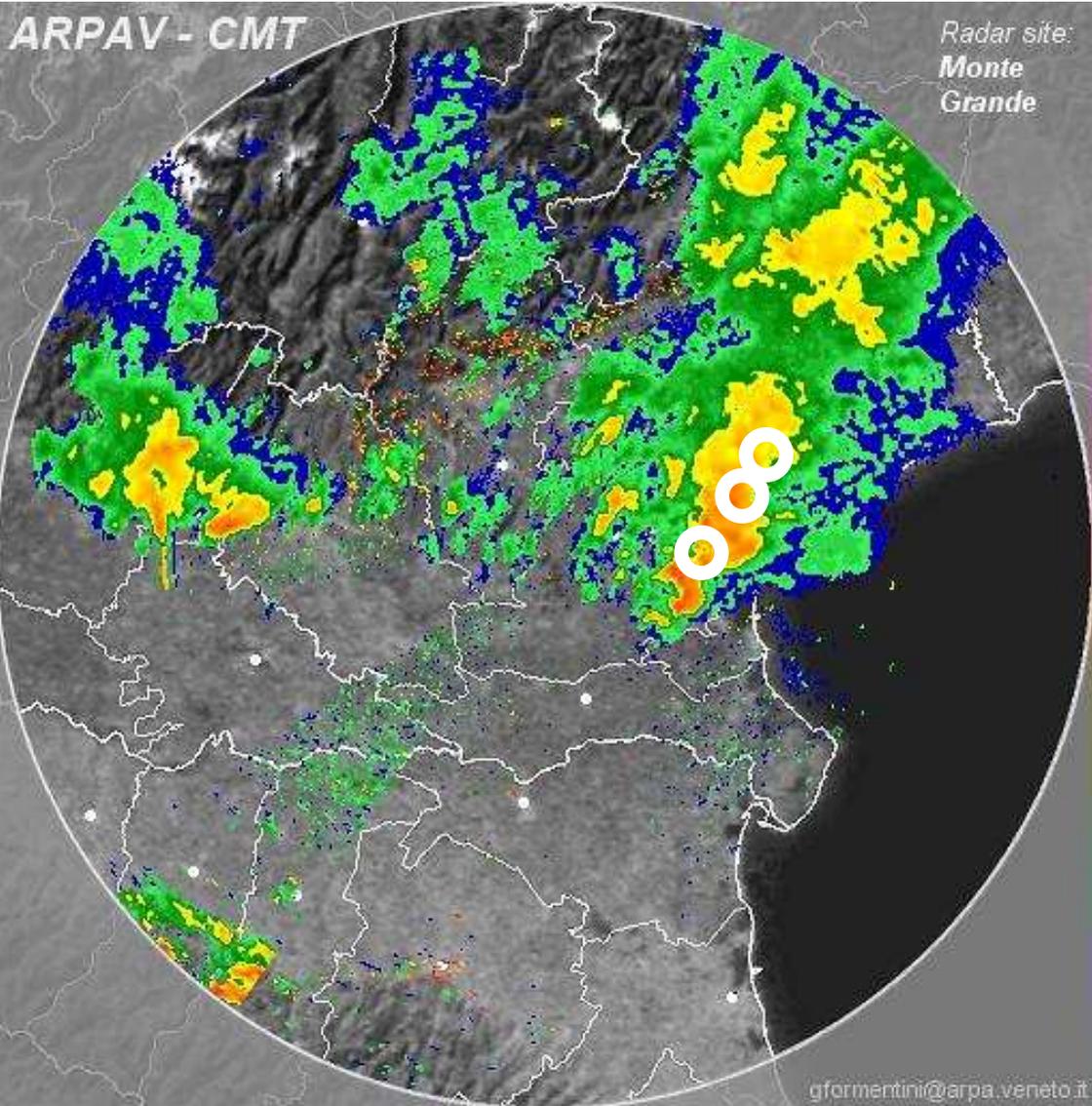
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

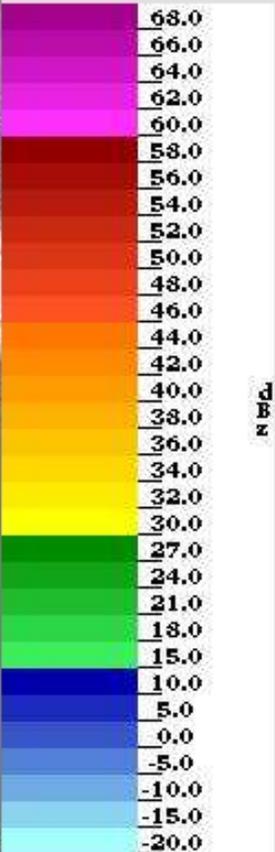
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
05:40



C. Intensity



mm/h

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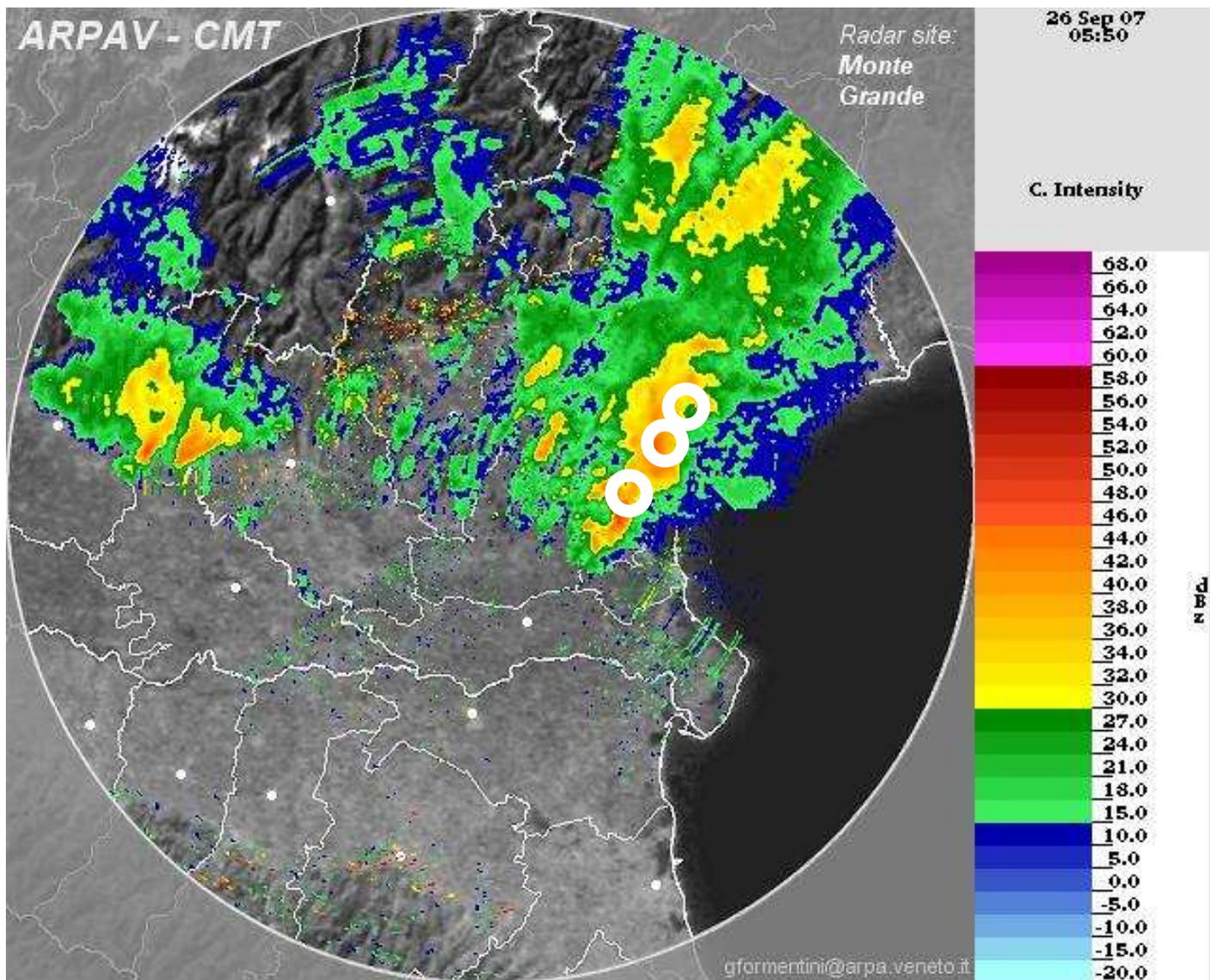
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
05:50



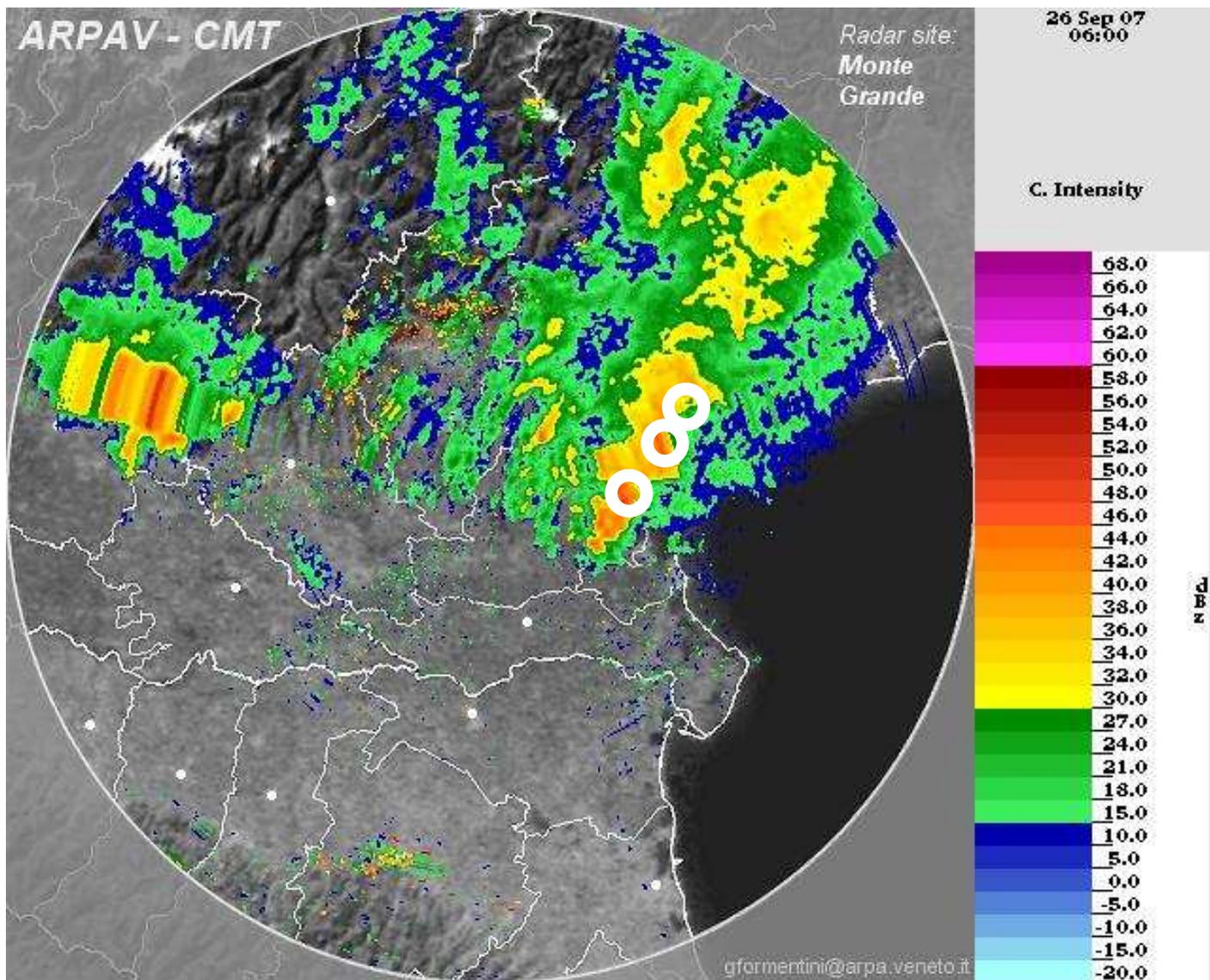
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
06:00



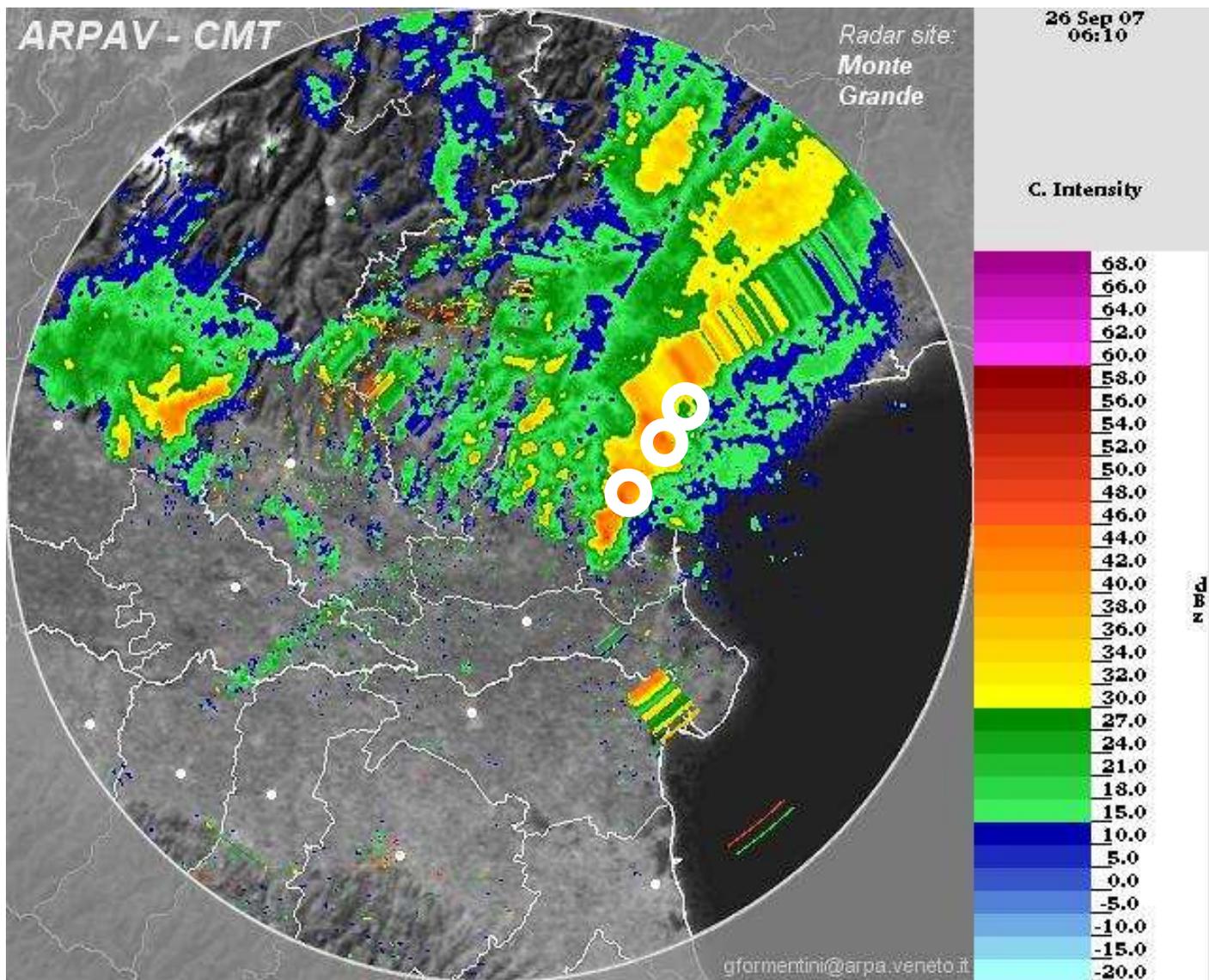
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
06:10



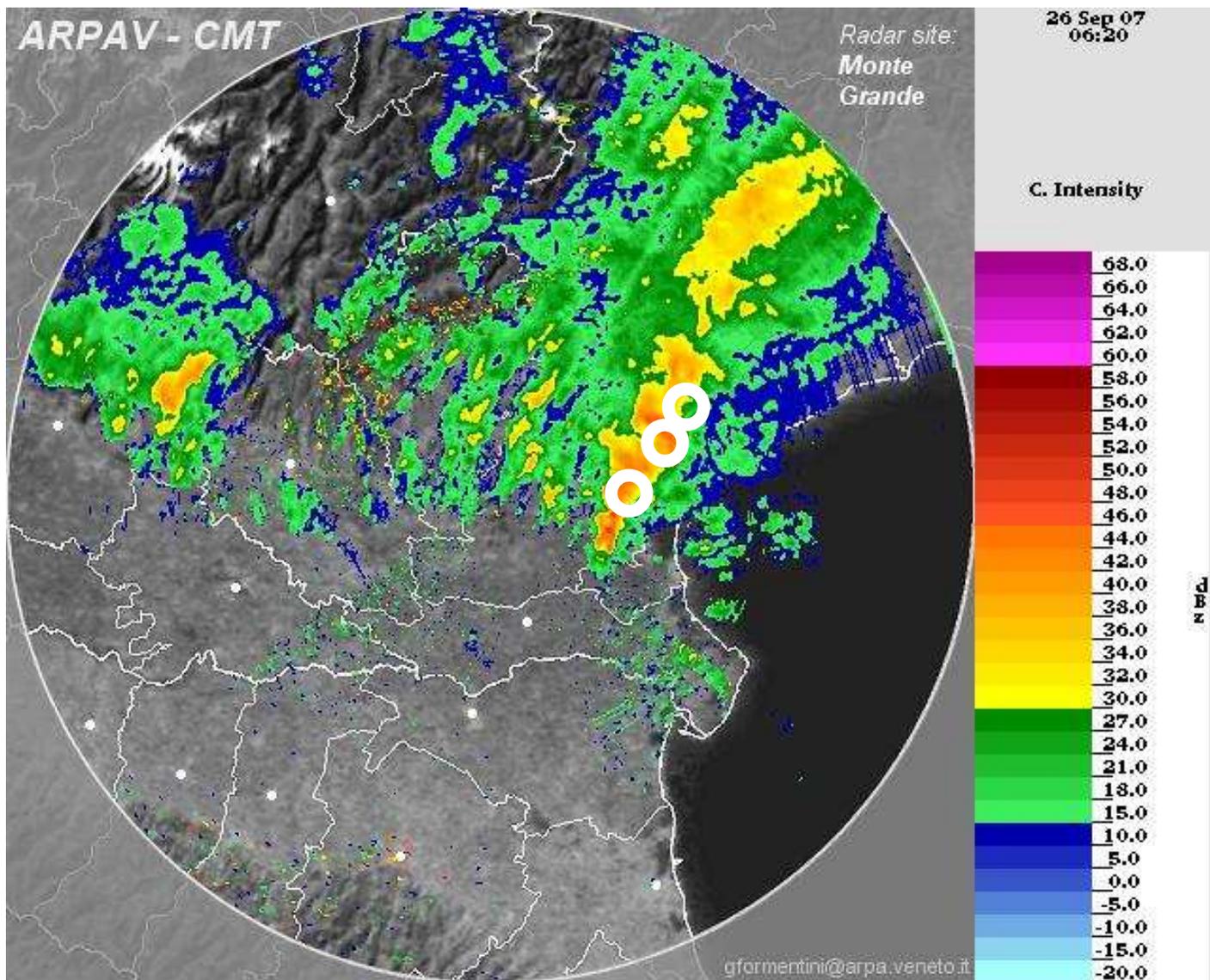
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
06:20



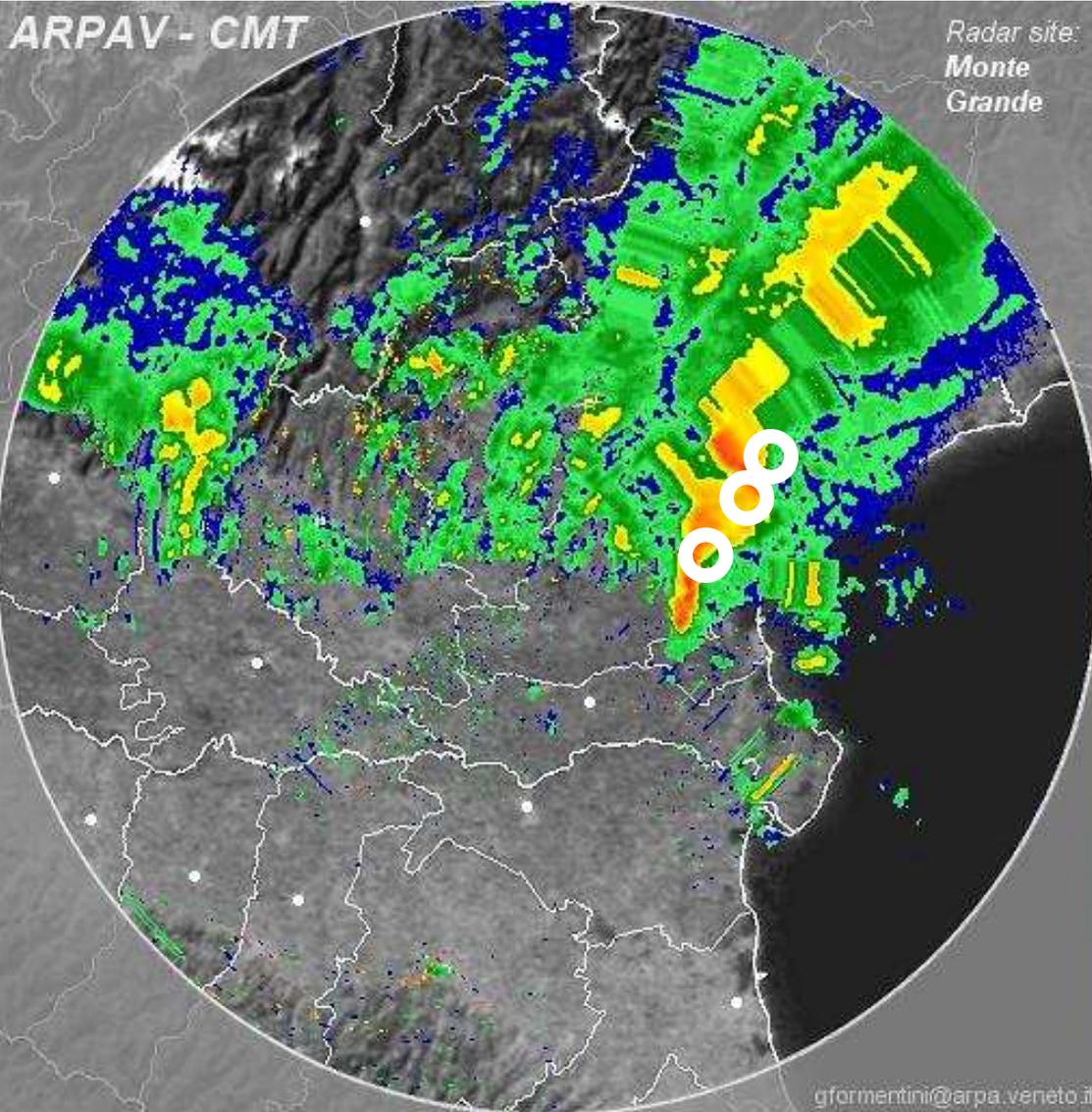
Product Type: Base Section Corrected Intensity Upper : 30

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|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

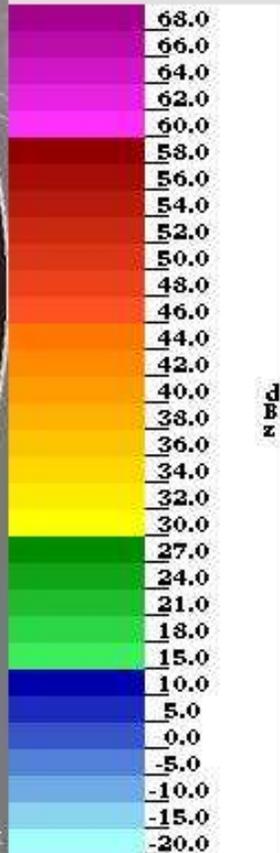
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
06:30



C. Intensity



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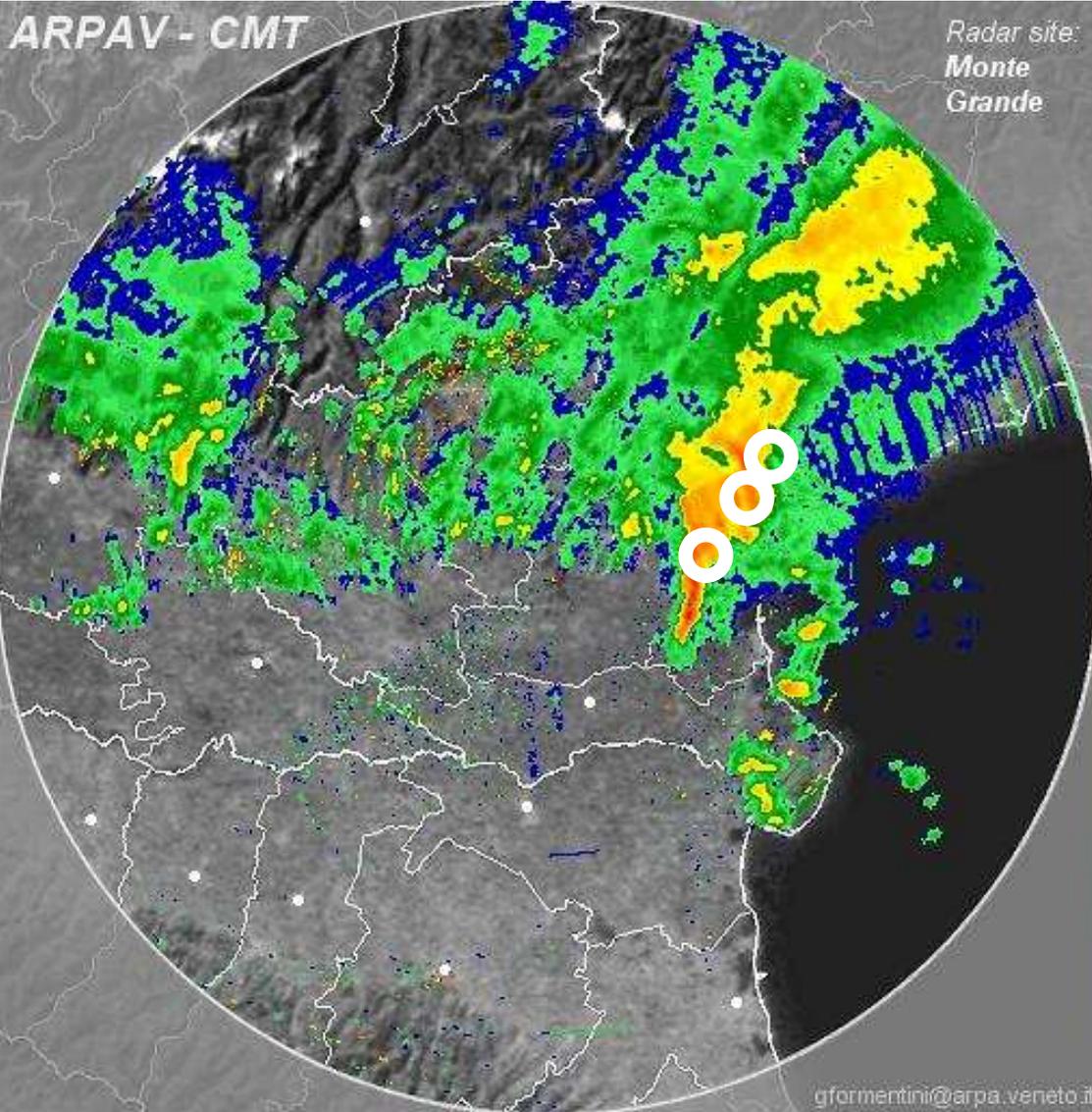
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

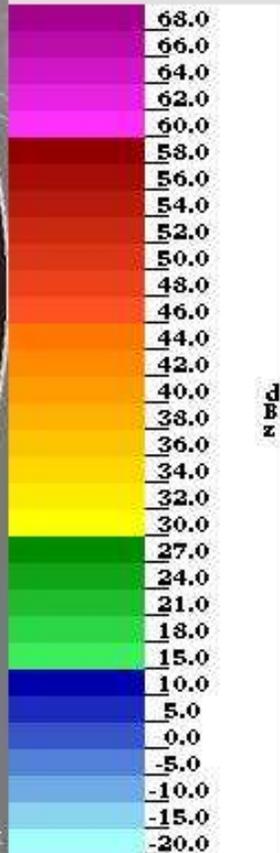
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
06:40



C. Intensity



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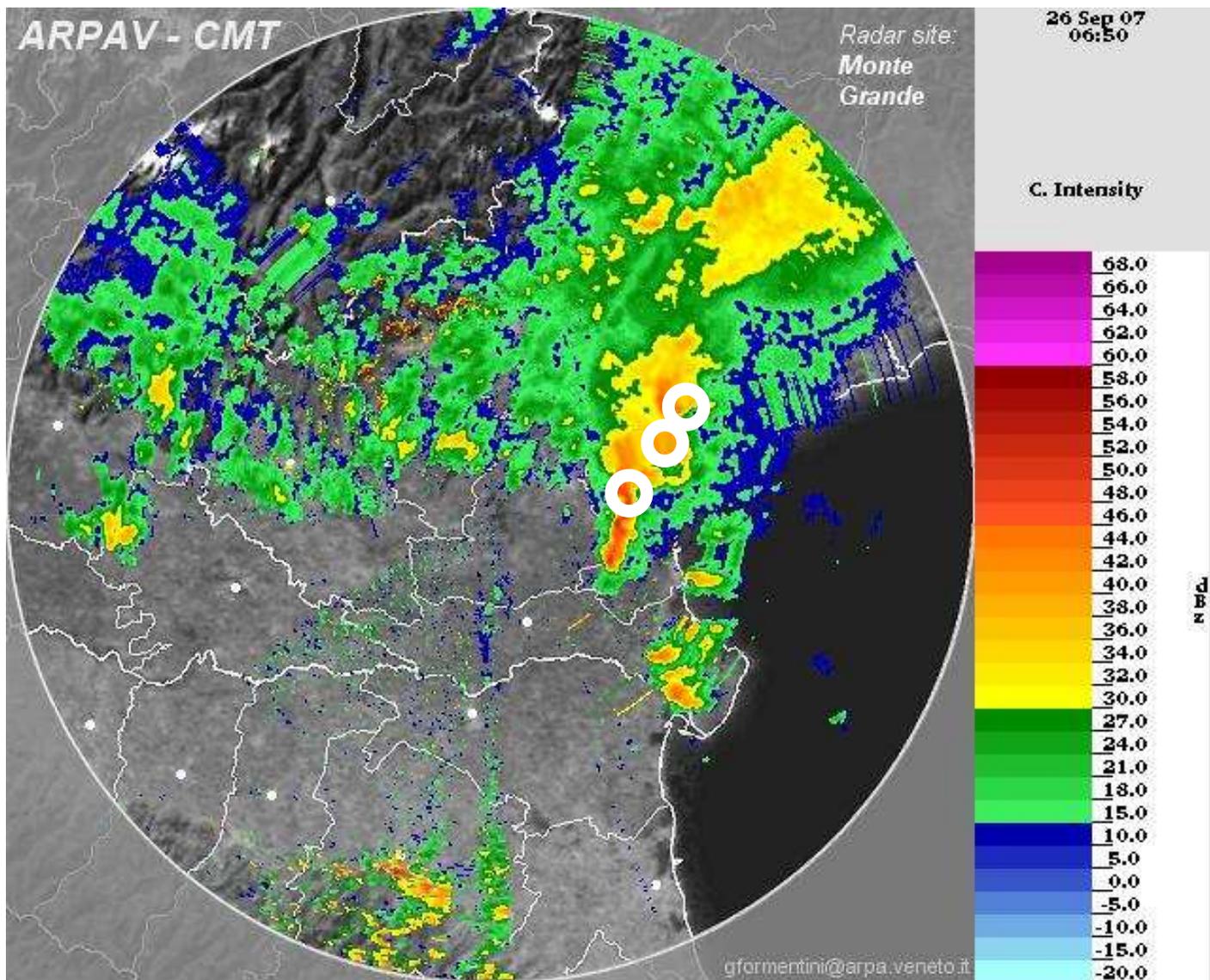
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
06:50



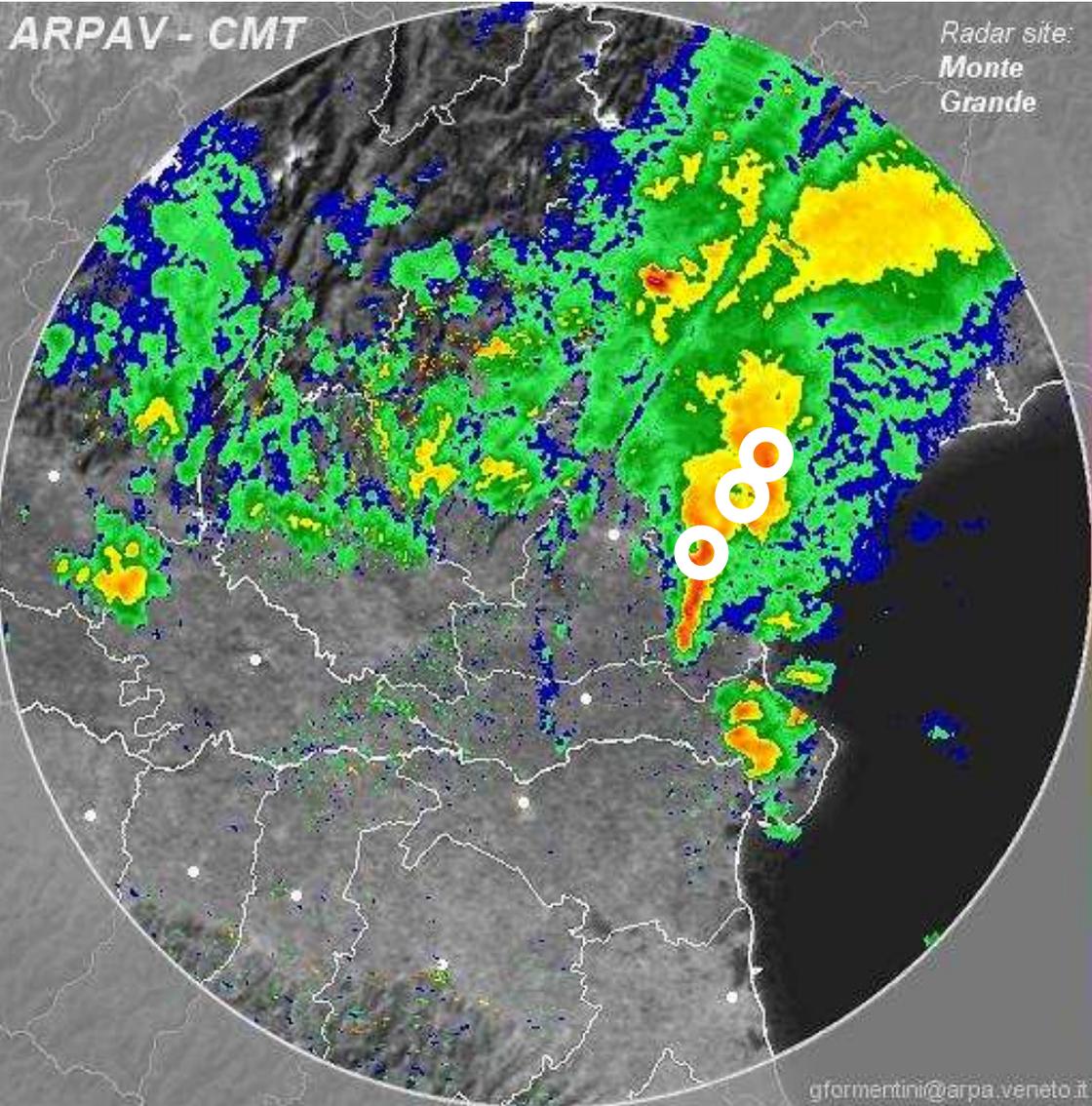
Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

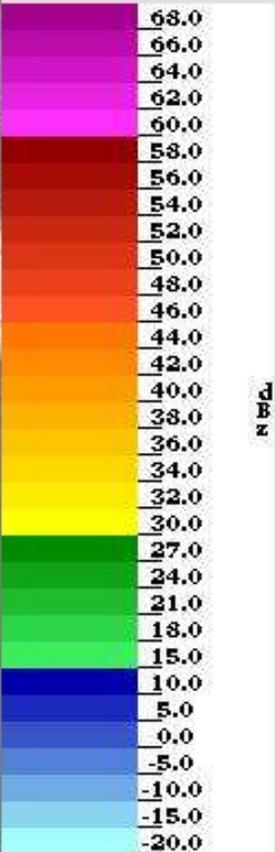
ARPAV - CMT

Radar site:
Monte
Grande

26 Sep 07
07:00



C. Intensity



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Product Type: Base Section Corrected Intensity Upper : 30

| | | |
|-------------------------|------------------------|---------------------------|
| PRF: 1109 Hz | Max Range: 128 km | Gates: 256 |
| Gatewidth: 500 m | Samples: 40 | Unfolding: 3:2 |
| Pulse Width: 0.8 us | Clutter Filter: 2 | Range Normalization: On |
| Site Name: Teolo, Italy | Radar Type: TVDR-2500C | Antenna Height ASL: 472 m |

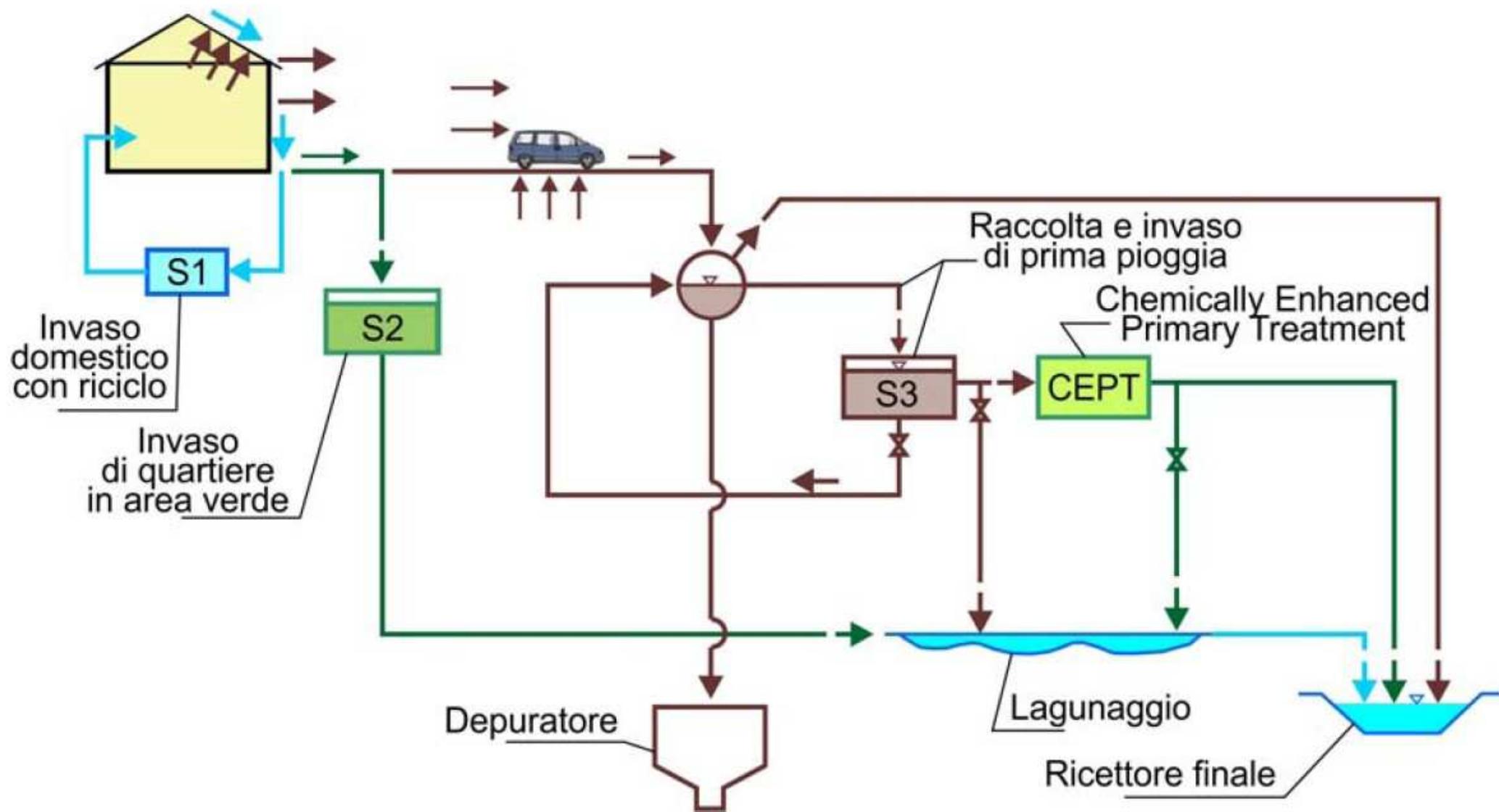
| Cittadella | Durate suborarie [minuti] | | | | | Durate orarie [h] | | | | |
|-------------------|----------------------------------|-----------|-----------|-----------|-----------|--------------------------|----------|----------|-----------|-----------|
| Anno | 5 | 10 | 15 | 30 | 45 | 1 | 3 | 6 | 12 | 24 |
| 1993 | 8.0 | 11.2 | 14.8 | 21.2 | 25.2 | 27.8 | 31.6 | 31.6 | 40.6 | 42.6 |
| 1994 | 13.0 | 23.4 | 30.4 | 39.6 | 47.6 | 63.6 | 88.6 | 90.2 | 90.2 | 91.6 |
| 1995 | 13.6 | 23.8 | 29.2 | 41.4 | 48.0 | 48.6 | 49.8 | 67.8 | 110.8 | 121.8 |
| 1996 | 11.2 | 20.0 | 27.4 | 41.2 | 42.4 | 53.8 | 68.2 | 68.2 | 68.2 | 68.8 |
| 1997 | 16.8 | 27.4 | 31.4 | 37.0 | 38.4 | 40.2 | 46.8 | 49.0 | 54.6 | 61.0 |
| 1998 | 9.2 | 16.2 | 19.0 | 29.6 | 42.2 | 47.2 | 69.0 | 73.0 | 73.0 | 127.6 |
| 1999 | 11.2 | 14.4 | 18.2 | 21.8 | 23.0 | 27.2 | 40.4 | 42.4 | 64.2 | 68.4 |
| 2000 | 11.2 | 18.0 | 24.4 | 33.6 | 34.6 | 38.4 | 47.4 | 47.8 | 56.6 | 70.0 |
| 2001 | 8.8 | 15.4 | 20.8 | 33.2 | 42.6 | 49.0 | 64.0 | 72.6 | 73.2 | 73.2 |
| 2002 | 12.2 | 24.2 | 34.4 | 49.0 | 49.8 | 50.0 | 50.0 | 60.4 | 74.8 | 81.4 |
| 2003 | 7.8 | 12.4 | 15.6 | 19.6 | 20.6 | 20.8 | 29.0 | 40.8 | 60.0 | 72.8 |
| 2004 | 8.6 | 16.8 | 18.8 | 26.2 | 33.6 | 38.6 | 59.8 | 70.2 | 72.6 | 73.6 |
| 2005 | 10.8 | 20.6 | 24.8 | 28.0 | 28.4 | 35.2 | 45.8 | 51.4 | 77.0 | 120.0 |
| 2006 | 7.6 | 14.0 | 17.0 | 18.2 | 18.2 | 20.6 | 40.6 | 68.4 | 91.8 | 104.2 |
| 2007 | 8.6 | 15.4 | 19.0 | 23.4 | 25.4 | 29.2 | 41.8 | 41.8 | 53.0 | 60.0 |
| 2008 | 10.0 | 17.2 | 18.6 | 27.0 | 32.6 | 41.4 | 44.6 | 45.0 | 55.4 | 86.0 |

| Este (loc.Calaone) | Durate suborarie [minuti] | | | | | Durate orarie [h] | | | | |
|-------------------------------|----------------------------------|-----------|-----------|-----------|-----------|--------------------------|----------|----------|-----------|-----------|
| Anno | 5 | 10 | 15 | 30 | 45 | 1 | 3 | 6 | 12 | 24 |
| 1992 | 12.0 | 21.4 | 28.4 | 50.8 | 58.0 | 58.8 | 67.8 | 72.6 | 79.4 | 109.0 |
| 1995 | 15.2 | 24.6 | 25.2 | 34.8 | 50.8 | 58.4 | 67.6 | 92.0 | 119.8 | 205.8 |
| 1996 | 9.8 | 16.8 | 22.0 | 37.6 | 44.4 | 46.6 | 50.8 | 53.8 | 55.4 | 55.4 |
| 1997 | 13.2 | 18.4 | 19.2 | 19.2 | 19.2 | 20.6 | 24.6 | 24.6 | 26.6 | 30.6 |
| 1998 | 8.6 | 11.4 | 15.8 | 17.6 | 23.4 | 25.8 | 38.8 | 38.8 | 38.8 | 43.6 |
| 1999 | 11.2 | 16.4 | 20.8 | 27.2 | 28.2 | 28.6 | 34.0 | 40.4 | 68.0 | 73.4 |
| 2000 | 10.0 | 18.8 | 26.6 | 32.8 | 35.2 | 35.8 | 36.8 | 36.8 | 41.4 | 44.4 |
| 2001 | 13.8 | 19.0 | 23.4 | 29.4 | 35.8 | 38.4 | 45.0 | 59.6 | 67.2 | 71.4 |
| 2002 | 10.8 | 16.4 | 22.4 | 30.2 | 33.2 | 33.4 | 47.2 | 47.2 | 50.4 | 50.4 |
| 2003 | 16.2 | 30.8 | 38.8 | 50.6 | 62.4 | 64.4 | 67.4 | 67.4 | 67.4 | 67.4 |
| 2004 | 10.2 | 13.4 | 15.6 | 16.8 | 21.0 | 21.6 | 26.8 | 35.4 | 37.6 | 49.8 |
| 2005 | 9.0 | 13.4 | 17.4 | 24.8 | 28.2 | 30.6 | 39.0 | 56.4 | 89.2 | 116.4 |
| 2006 | 8.2 | 11.6 | 18.8 | 25.0 | 25.2 | 25.4 | 43.4 | 51.6 | 63.2 | 67.2 |
| 2007 | 6.4 | 11.4 | 14.2 | 22.6 | 27.8 | 28.0 | 39.6 | 48.2 | 48.2 | 48.2 |
| 2008 | 8.8 | 16.6 | 21.4 | 33.2 | 39.0 | 40.2 | 40.4 | 40.4 | 48.2 | 49.0 |

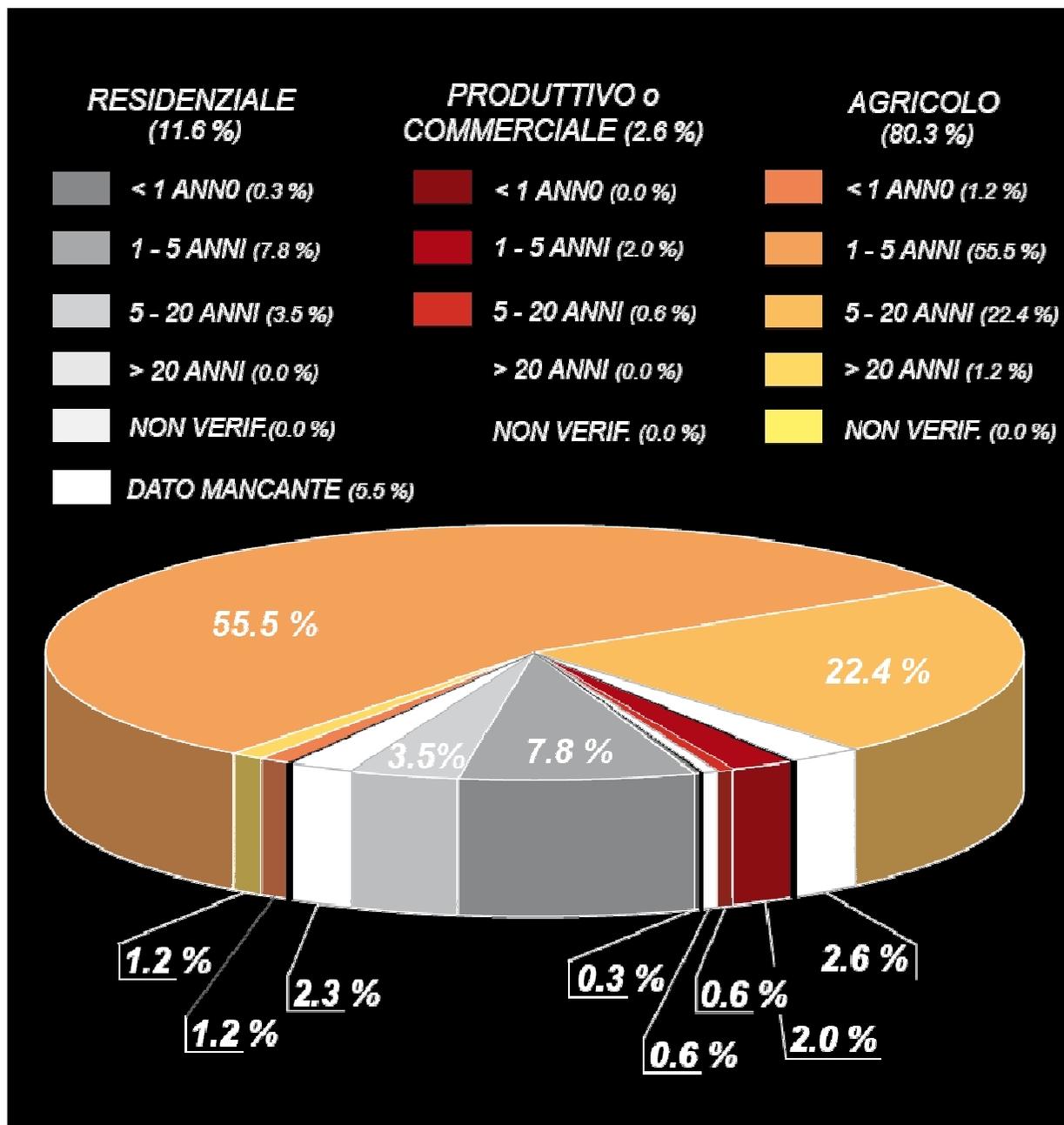
Compatibilità e invarianza idraulica



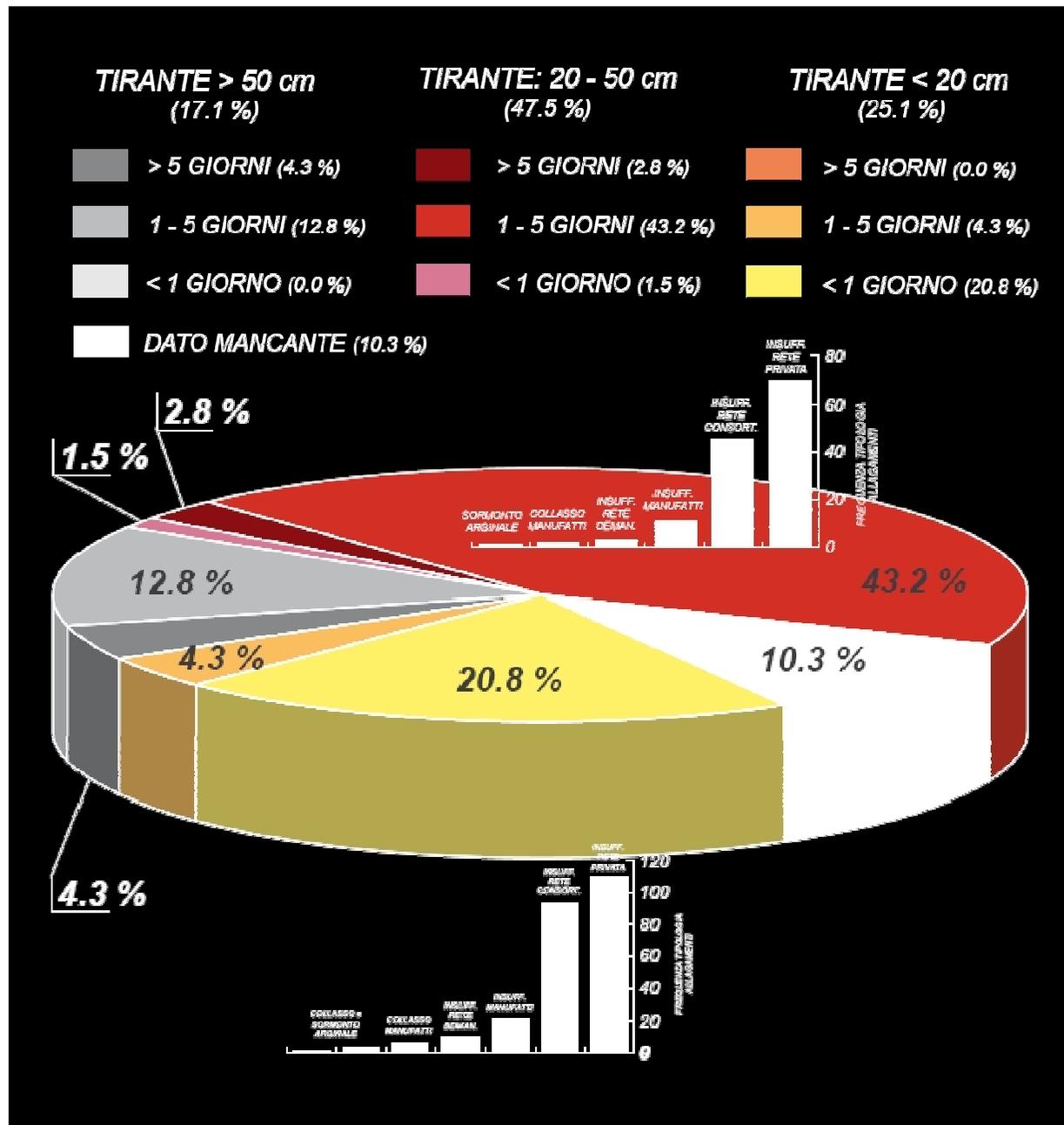




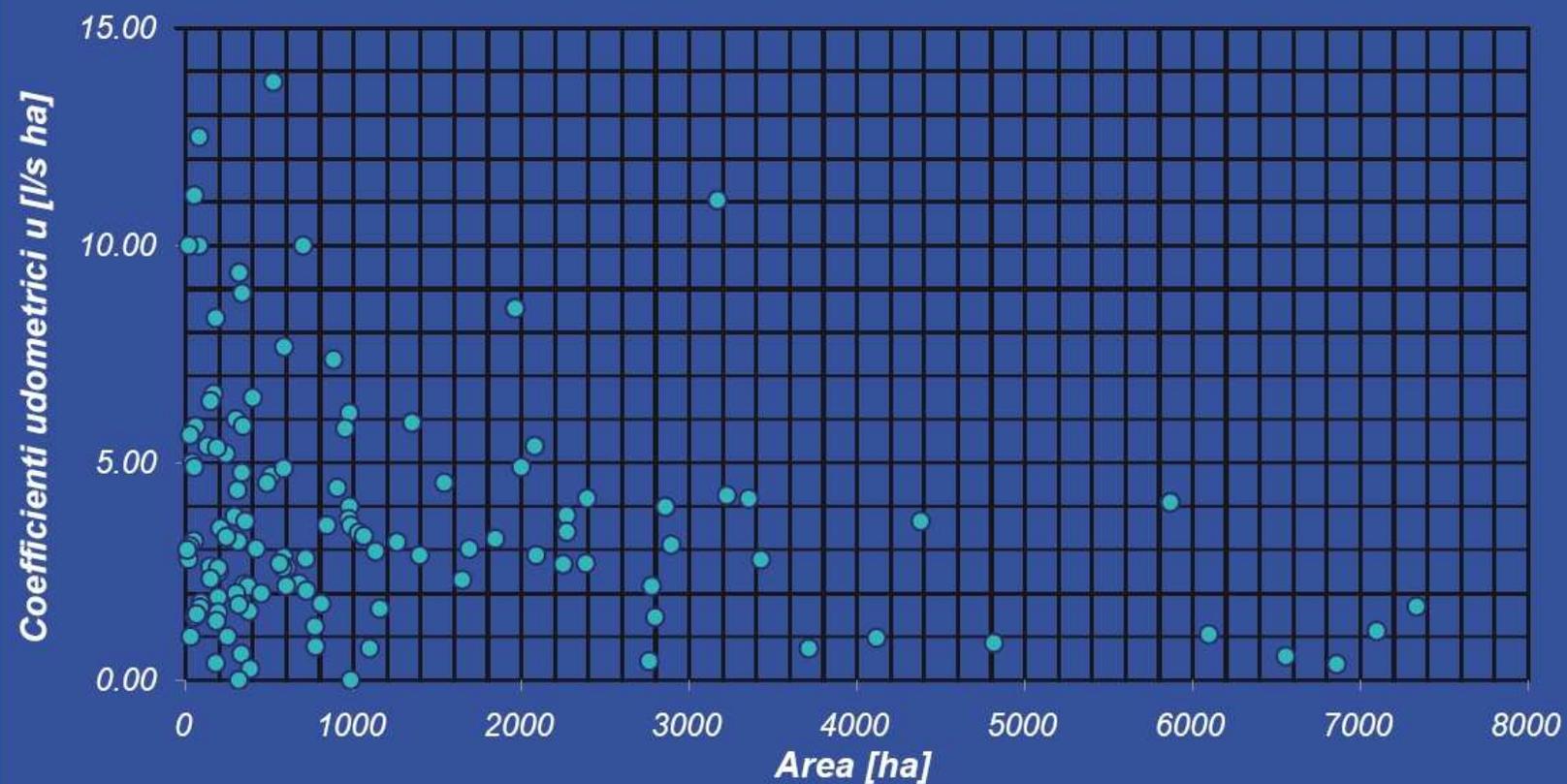
AREE ALLAGABILI e FREQUENZA di ALLAGAMENTO nel BACINO LAGUNA di VENEZIA



AREE ALLAGABILI, TIRANTI e DURATA degli ALLAGAMENTI nel BACINO LAGUNA di VENEZIA



142 impianti idrovori
portata complessiva 536 m³/s
potenza installata 40309 kW
gruppi elettrogeni 17875 kW



Piena del novembre 2010







CO.SORZIO S. ANTONIO BRENTA
IMPIANTO DI ROVORO DI VEGGIANO



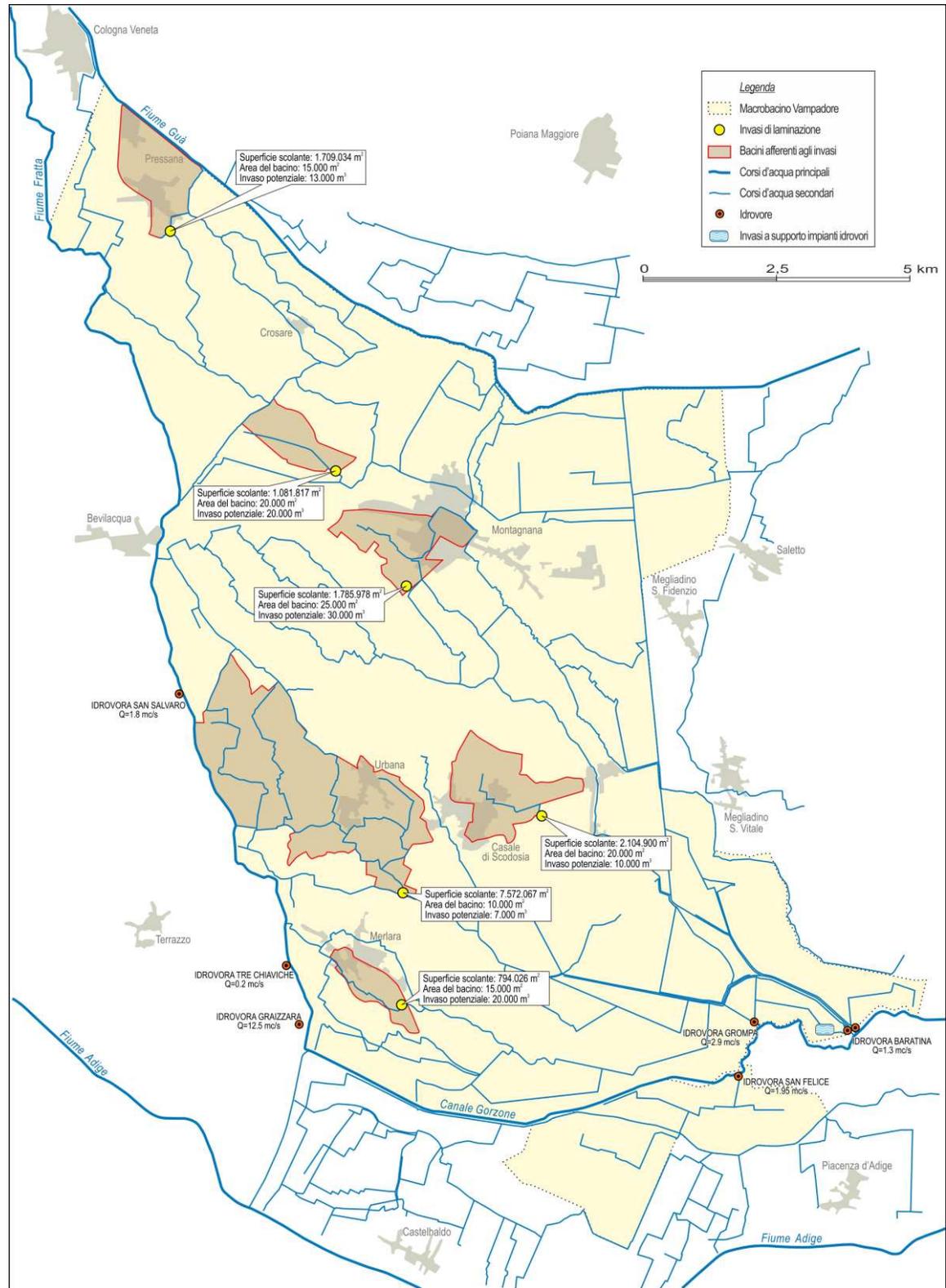
Gruppo elettrogeno sommerso dalla piena del fiume Tesina Padovano









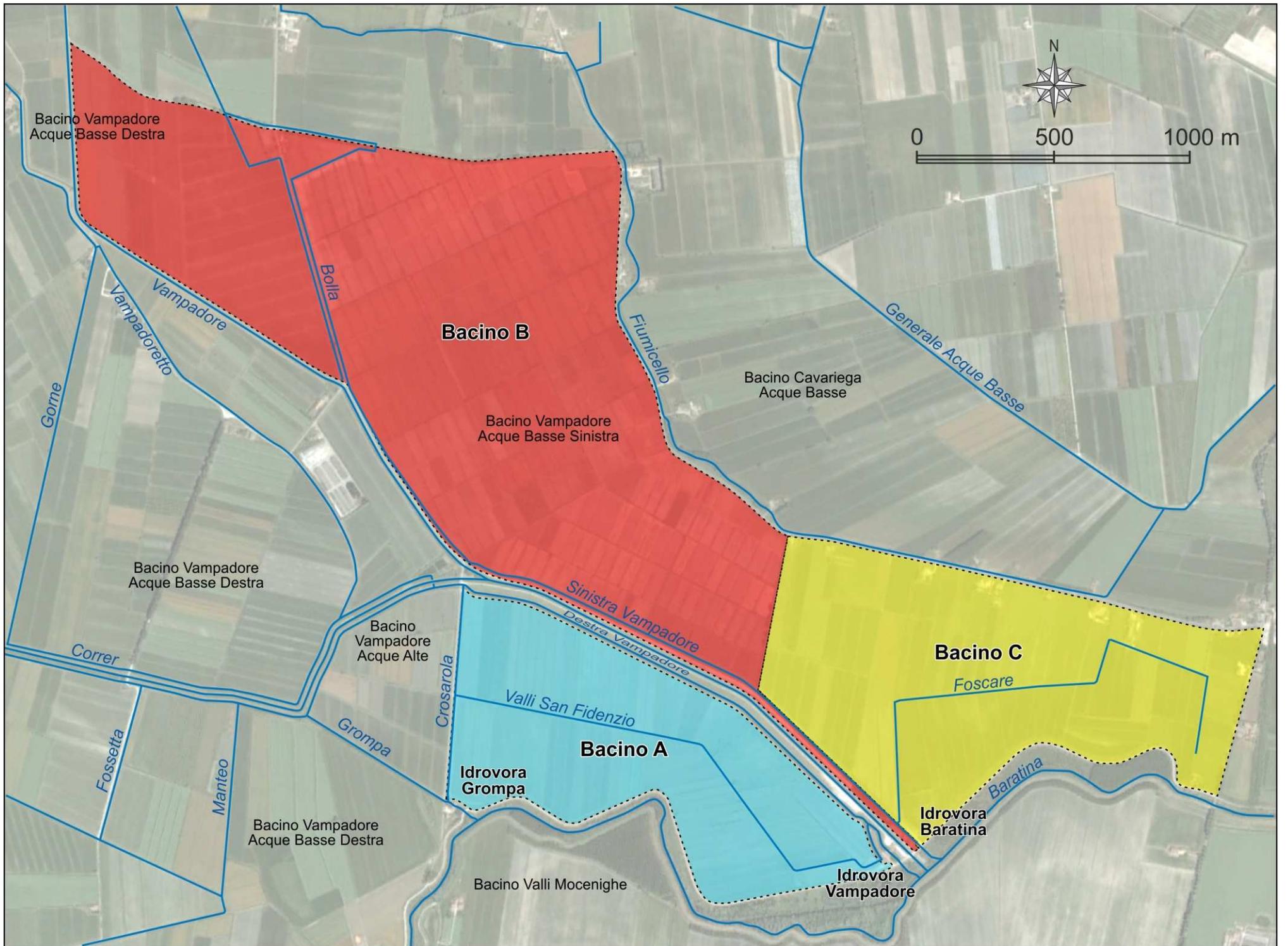


Volumi di invaso disponibili e necessari per le singole unità territoriali

| Unità territoriale | Volume disponibile [m³] | Volume necessario [m³] |
|-----------------------------|---|--|
| <u>Gorzon Medio</u> | 105.000 | 79.950 |
| <u>Gorzon Inferiore</u> | 171.000 | 300.300 |
| <u>Cavariega-Frattesina</u> | 171.500 | 135.150 |
| Vampadore | 100.000 | 156.000 |
| <u>Brancaglia</u> | 48.000 | 49.900 |



Impianti idrovori di Vampadore (a), Ca' Giovannelli (b), Lavacci (c) e Cavariega (d).



Provincia di Venezia

**I Piani comunali delle Acque
strumenti di sicurezza idraulica e opportunità per la
rigenerazione del territorio**

prof. Vincenzo Bixio

Dipartimento di Ingegneria Idraulica, Marittima, Ambientale e Geotecnica

Venezia, 4 novembre 2011