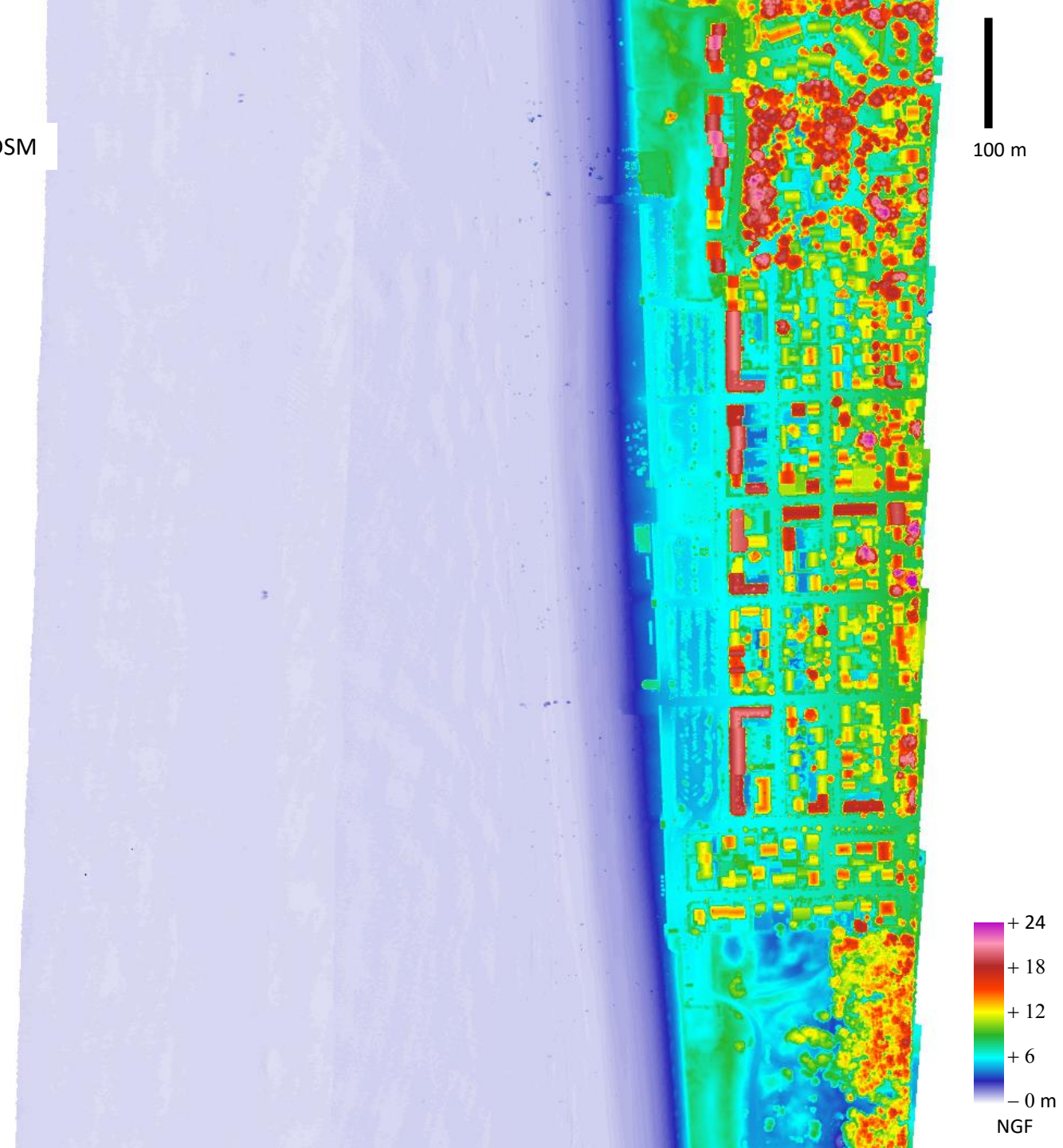
Notre-Dame-de-Monts-20200729-30-infrared-DSM

Digital Surface Model (DSM) or upper envelop of IR laser beam discrete echoes.



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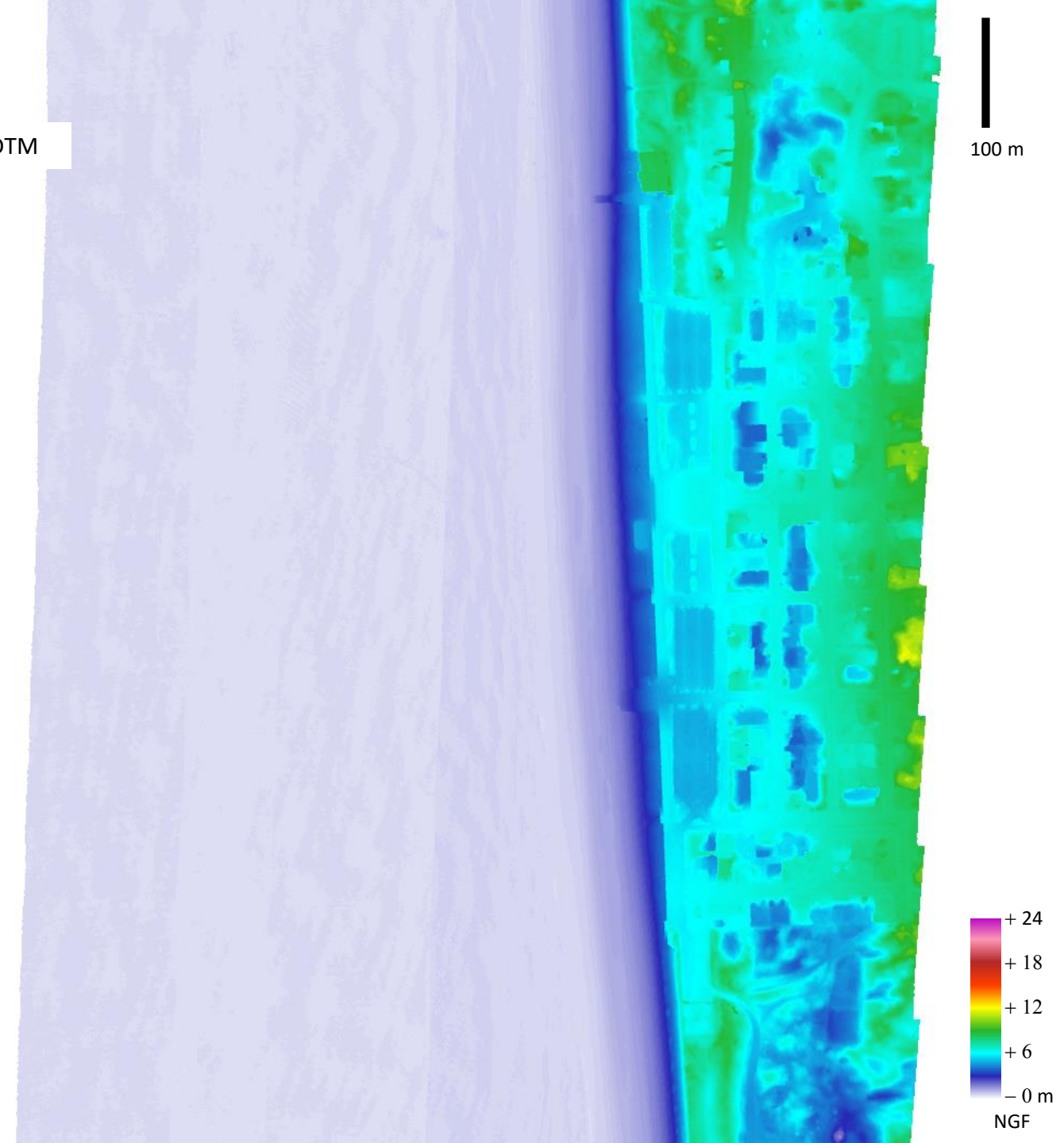
Notre-Dame-de-Monts-20200729-30-infrared-DTM

Digital terrain model (DTM) or bottom envelope of infrared laser beam discrete echoes with terrain interpolation below point clouds classified in buildings or trees.



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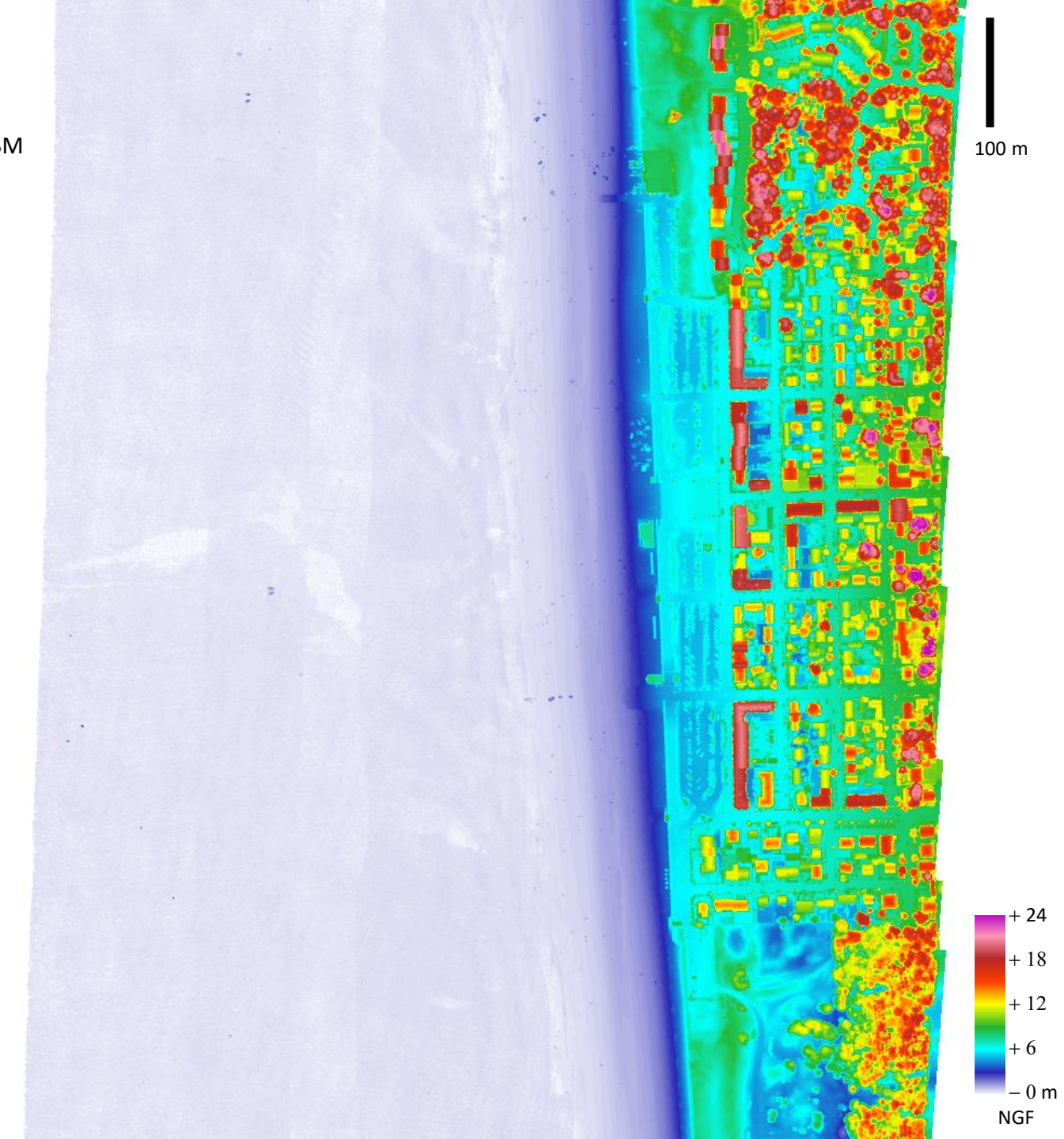
Notre-Dame-de-Monts-20200729-30-green-DSM

Digital Surface Model (DSM) or upper envelop of green laser beam discrete echoes



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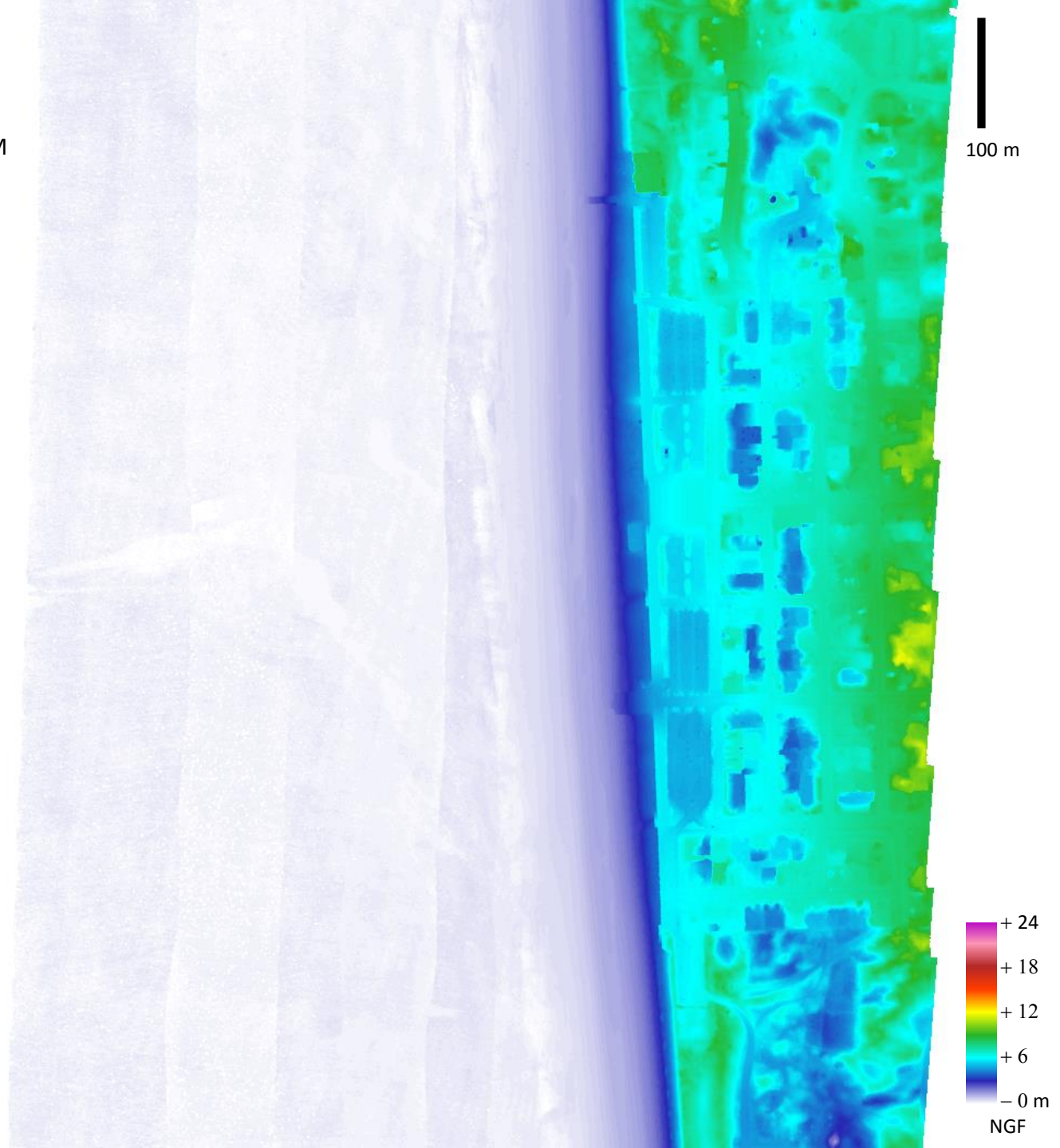
Notre-Dame-de-Monts-20200729-30-green-DTM

Digital terrain model (DTM) or bottom envelope of green laser beam discrete echoes with terrain interpolation below point clouds classified in buildings or trees.



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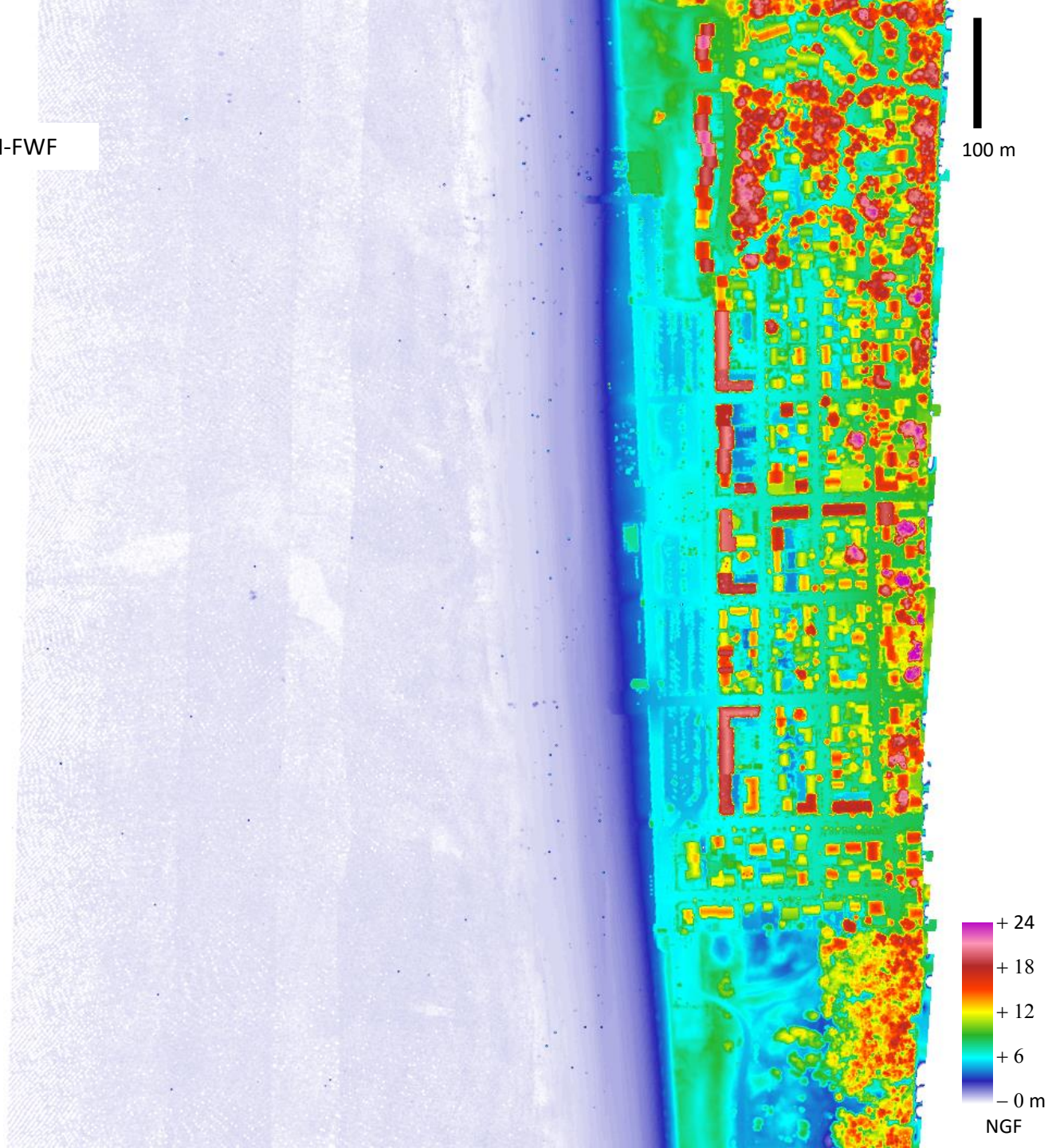
Notre-Dame-de-Monts-20200729-30-green-DSM-FWF

Digital Surface Model (DSM) or upper envelop of green laser beam 1st echoes of full-waveform (FWF).



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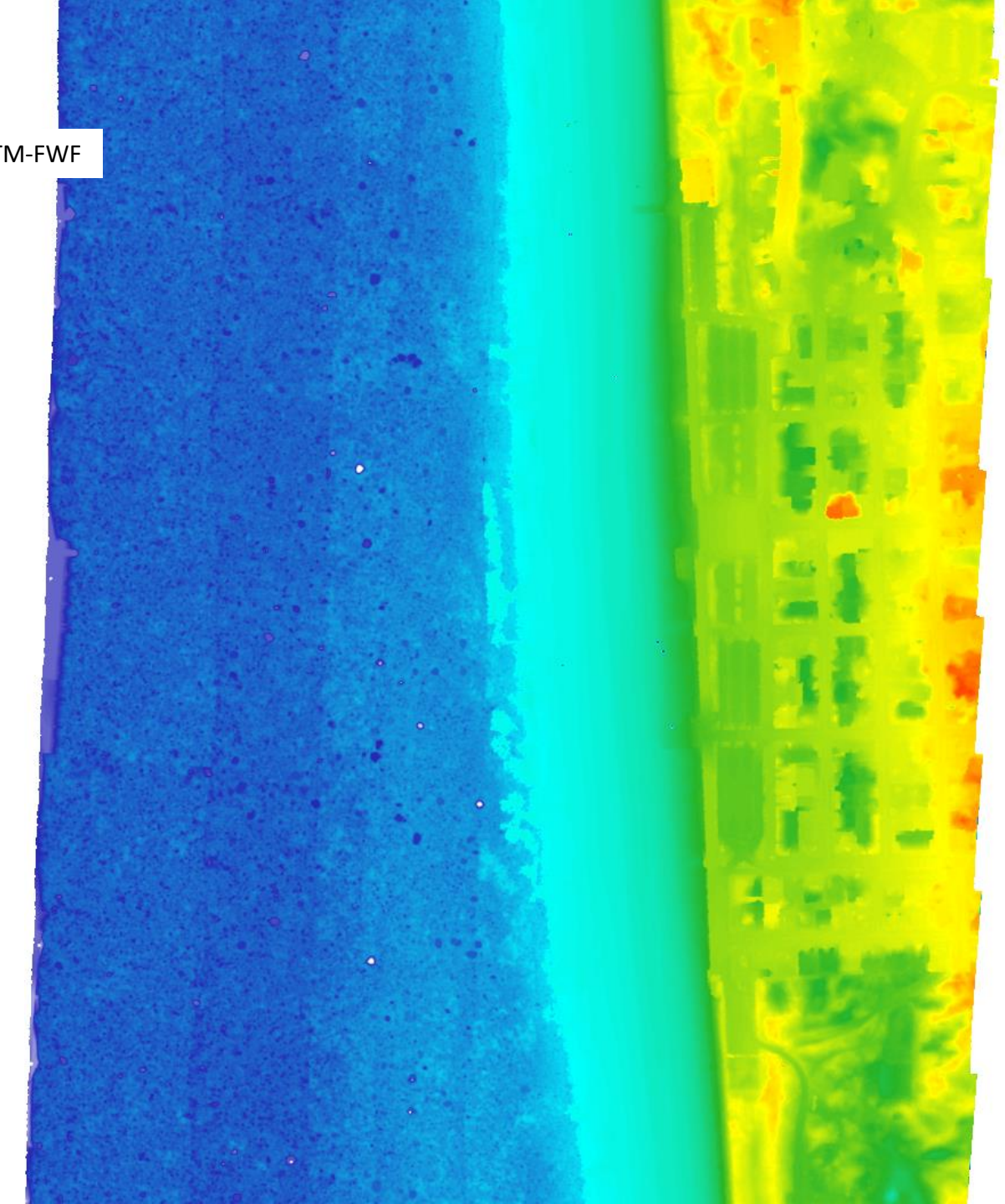
Notre-Dame-de-Monts-20200729-30-green-DTM-FWF

Digital terrain model (DTM) or bottom envelope of green laser beam discrete last echoes calculated on full-waveform (FWF).

DTM prior bathymetric correction



100 m

+ 24
+ 16
+ 8
– 0
– 8 m
NGF

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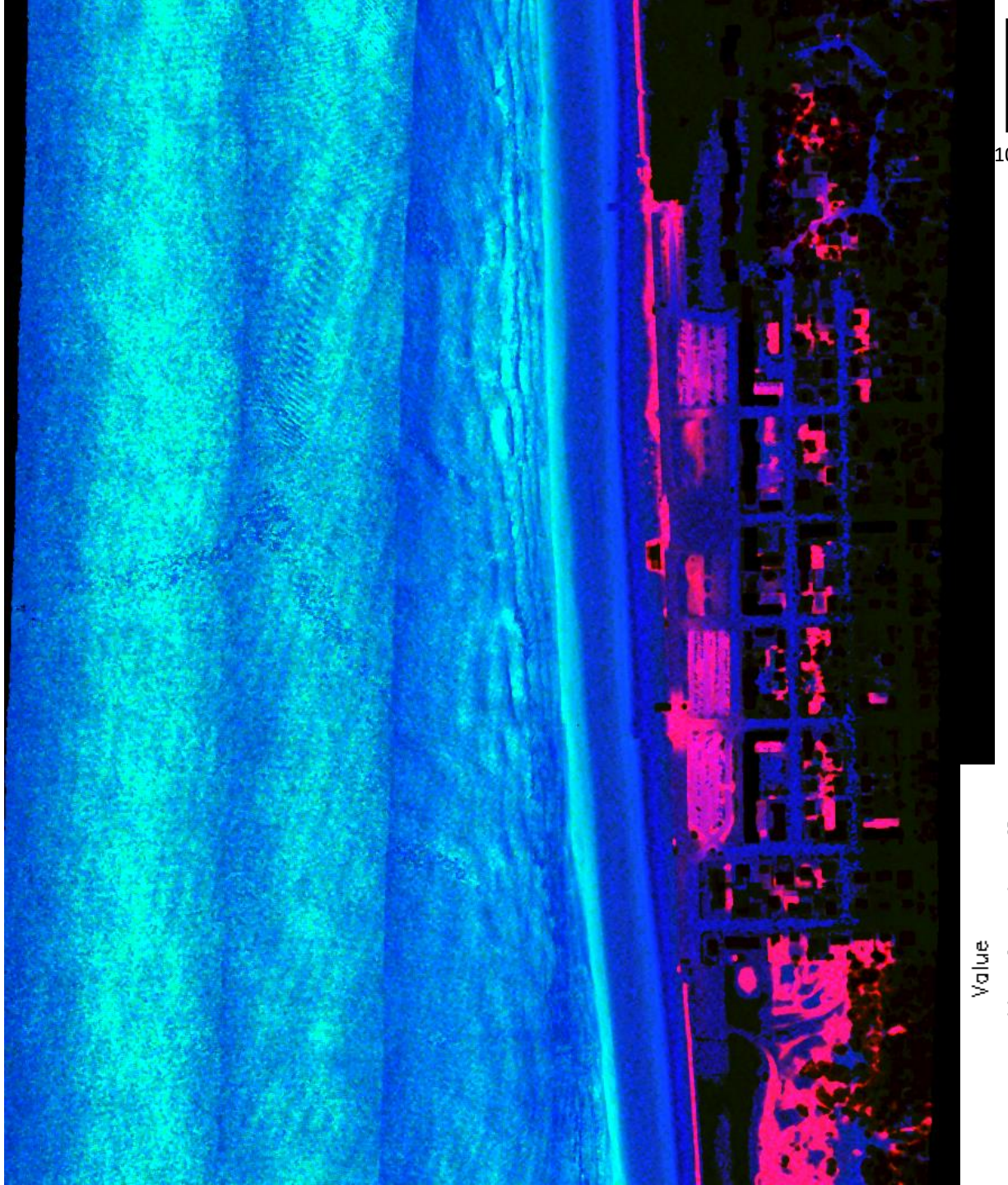
Notre-Dame-de-Monts-20200729-30-IR-FWF

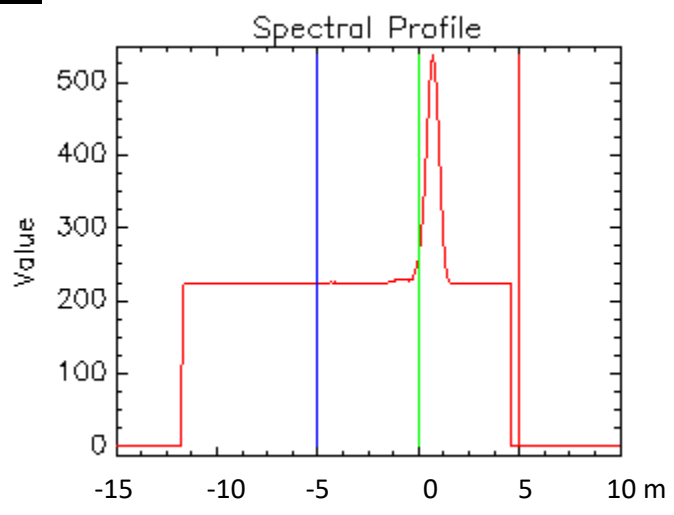
IR Full-waveform (FWF) recorded on a base line at 220 between -15 m et +10 m with respect to the NGF reference of IGN.
Color composition of altitudes, blue -5 m, green 0 m and red +5 m.

FWF prior bathymetric correction



100 m

Ligne de base 220



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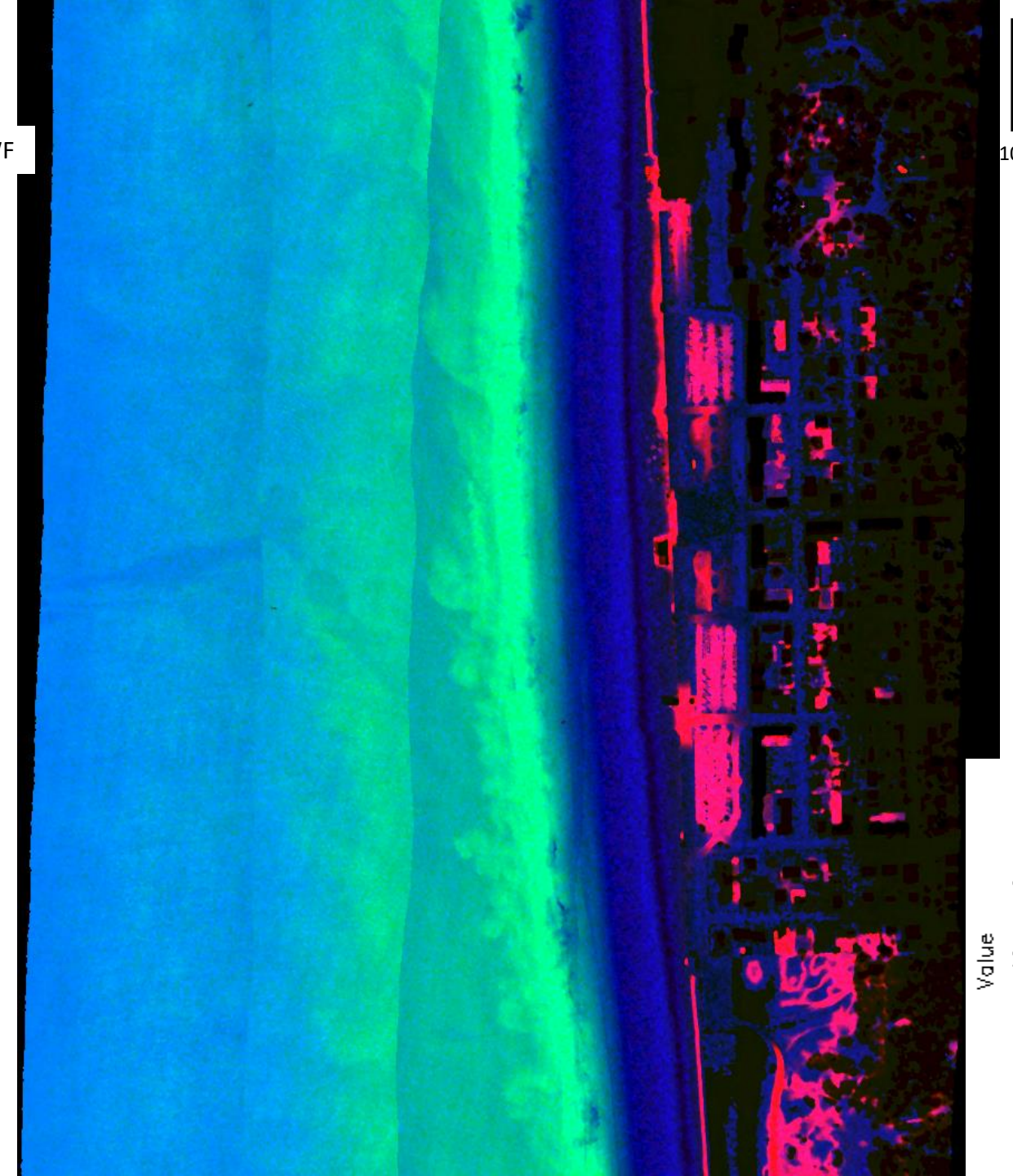
Notre-Dame-de-Monts-20200729-30-green-FWF

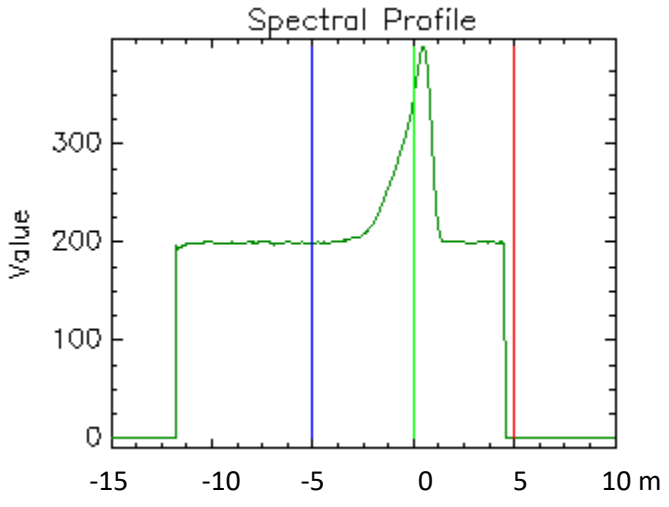


100 m

Green Full-waveform (FWF) recorded on a base line at 196 between -15 m et +10 m with respect to the NGF reference of IGN. Color composition of altitudes, blue -5 m, green 0 m and red +5 m.

FWF prior bathymetric correction

Ligne de base 196



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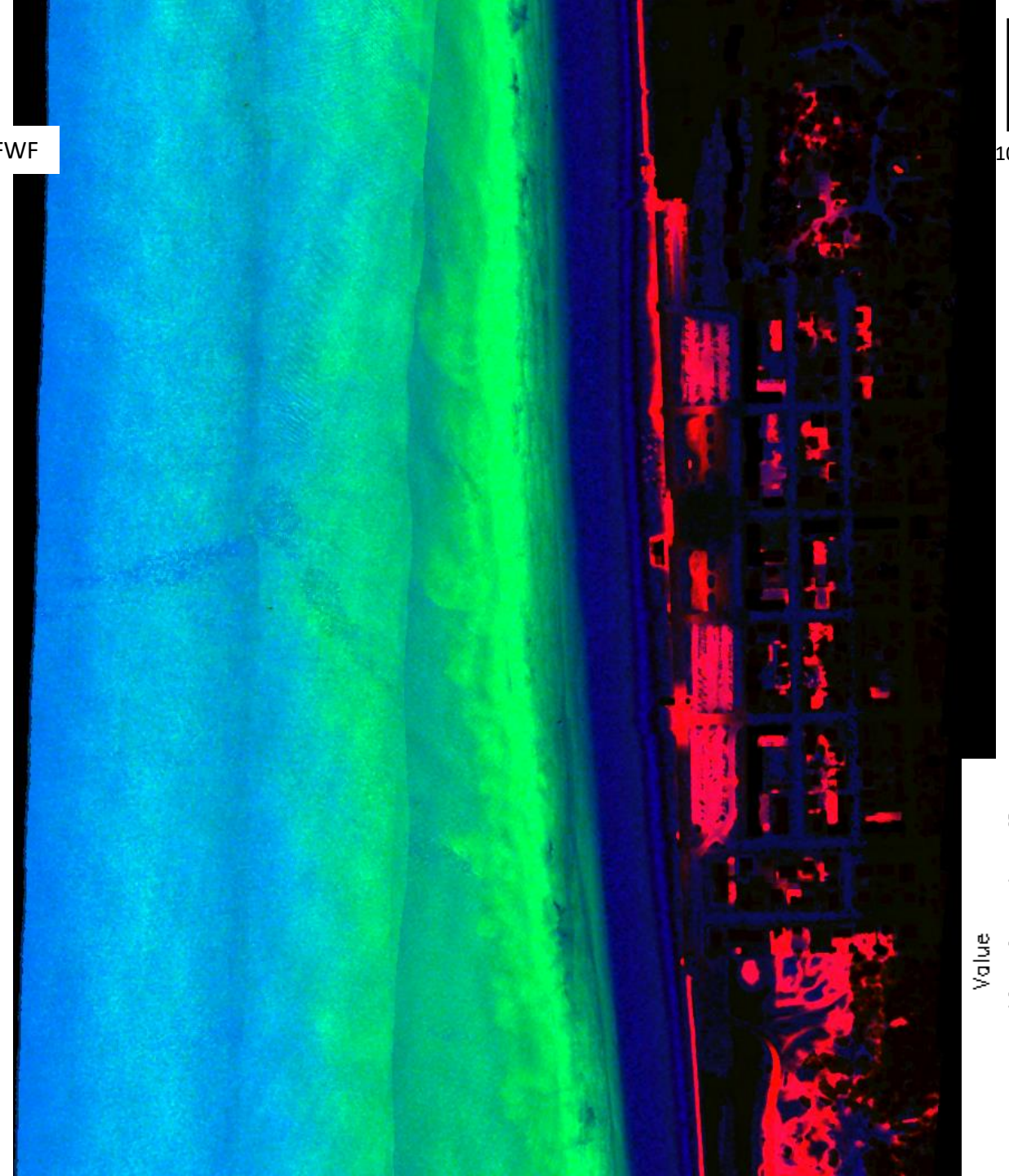
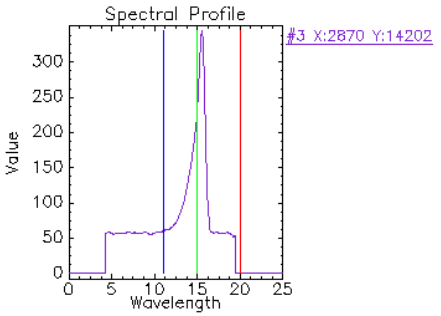
Notre-Dame-de-Monts-20200729-30-green-IR-FWF



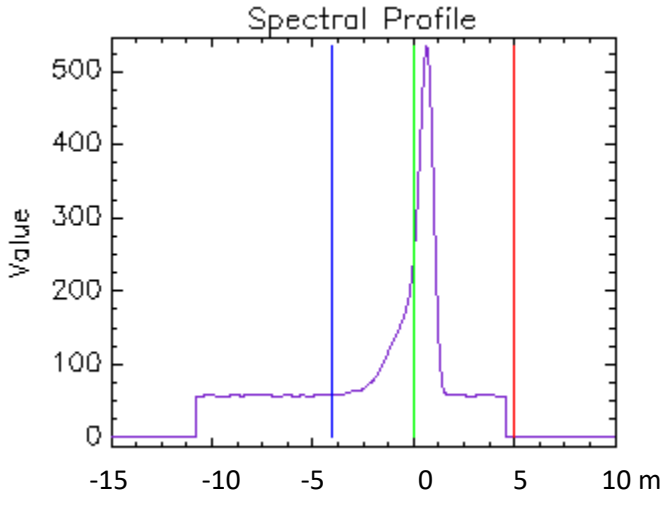
100 m



Green and IR Full-waveform (FWF) combination on a new base line at 50 between for altitudes ranging from -15 m to +10 m with respect to the NGF reference of IGN.
Color composition of altitudes, blue -5 m, green 0 m and red +5 m.

FWF prior bathymetric correction

Ligne de base 50



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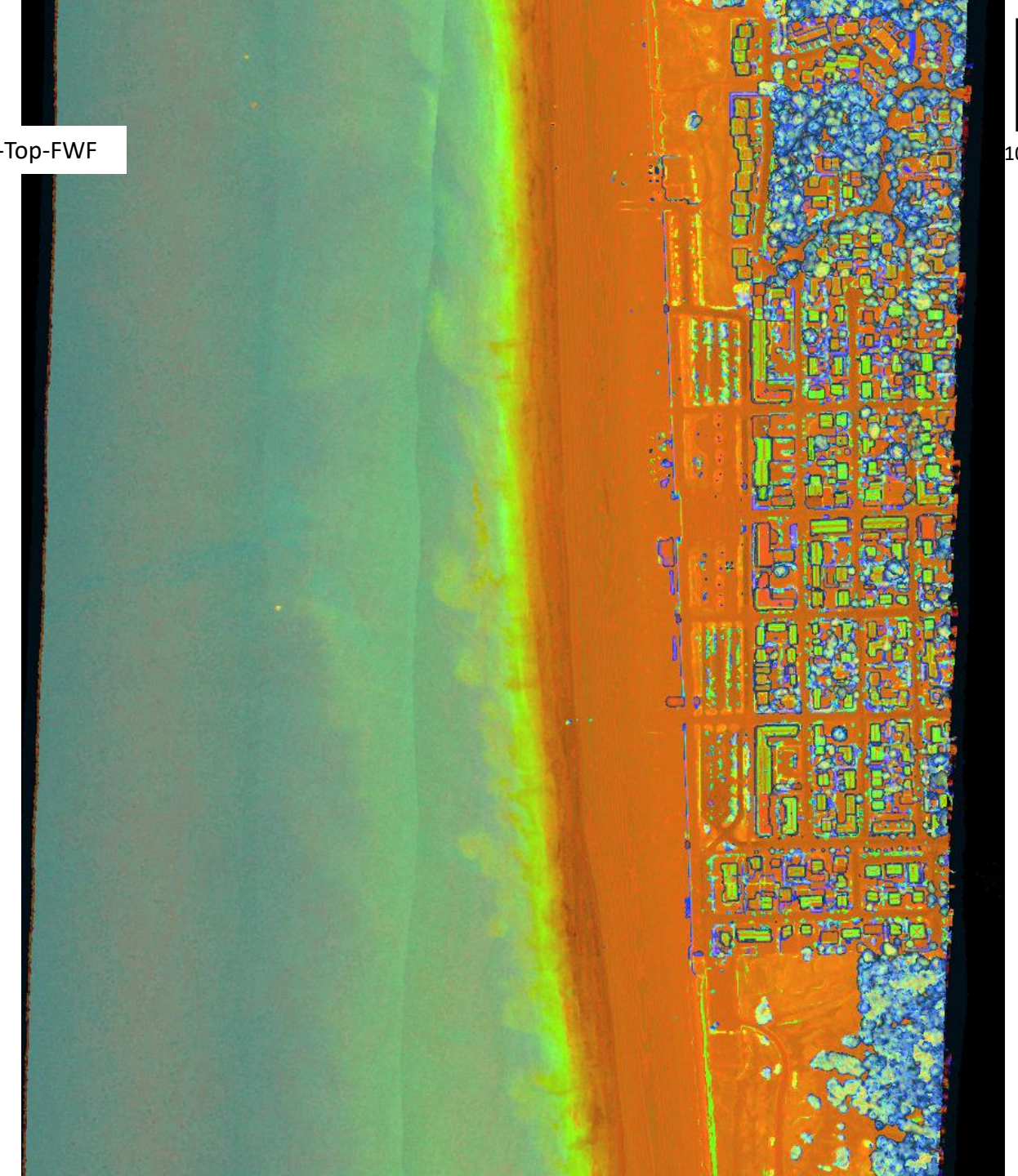
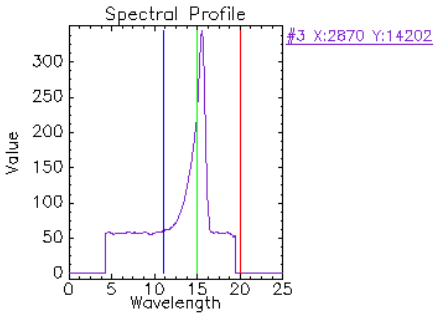
Notre-Dame-de-Monts-20200729-30-Green-IR-Top-FWF



100 m



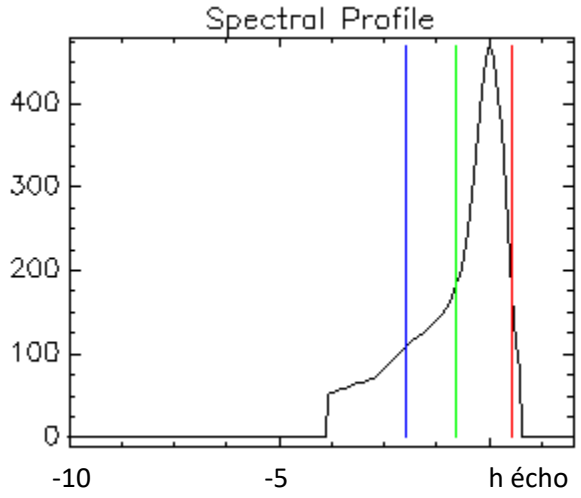
Normalized FWF centered on the calculated 1st echo.

Color composition:

Red at	+ 0,50 m
Green at	– 0,75 m
Blue at	– 2,00 m

FWF prior bathymetric correction

d1NCFWF



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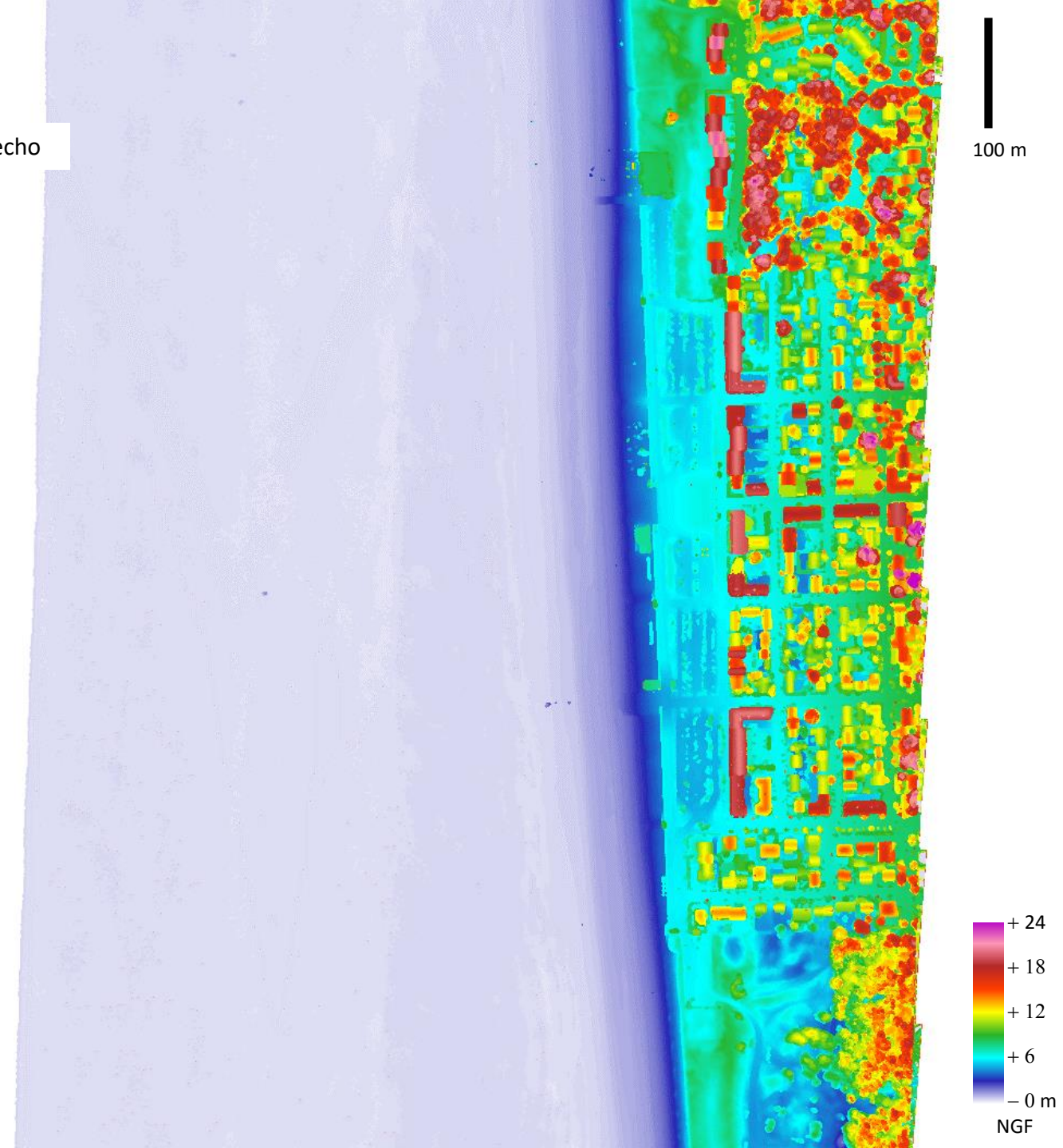
Notre-Dame-de-Monts-20200729-30-FWF-1st-echo

Altitude of the 1st echo of the green and infrared FWF.



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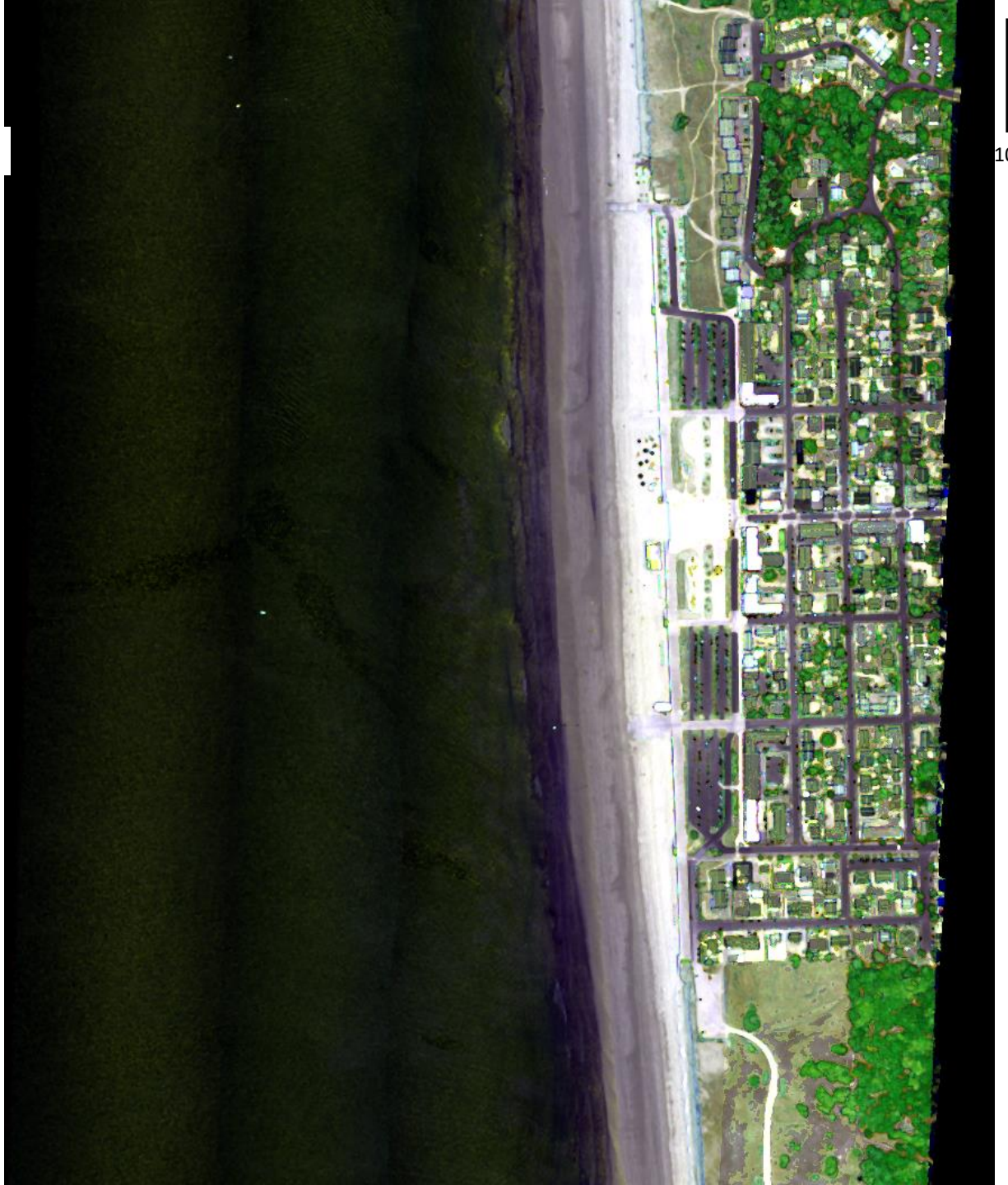
Notre-Dame-de-Monts-20200729-30-FWF-stats

Color composition of FWF statistic revealing surface compositions.

- Maximum green & infrared FWF intensity
- Mean green & infrared FWF intensity
- Mean green discrete echo’s intensity



100 m

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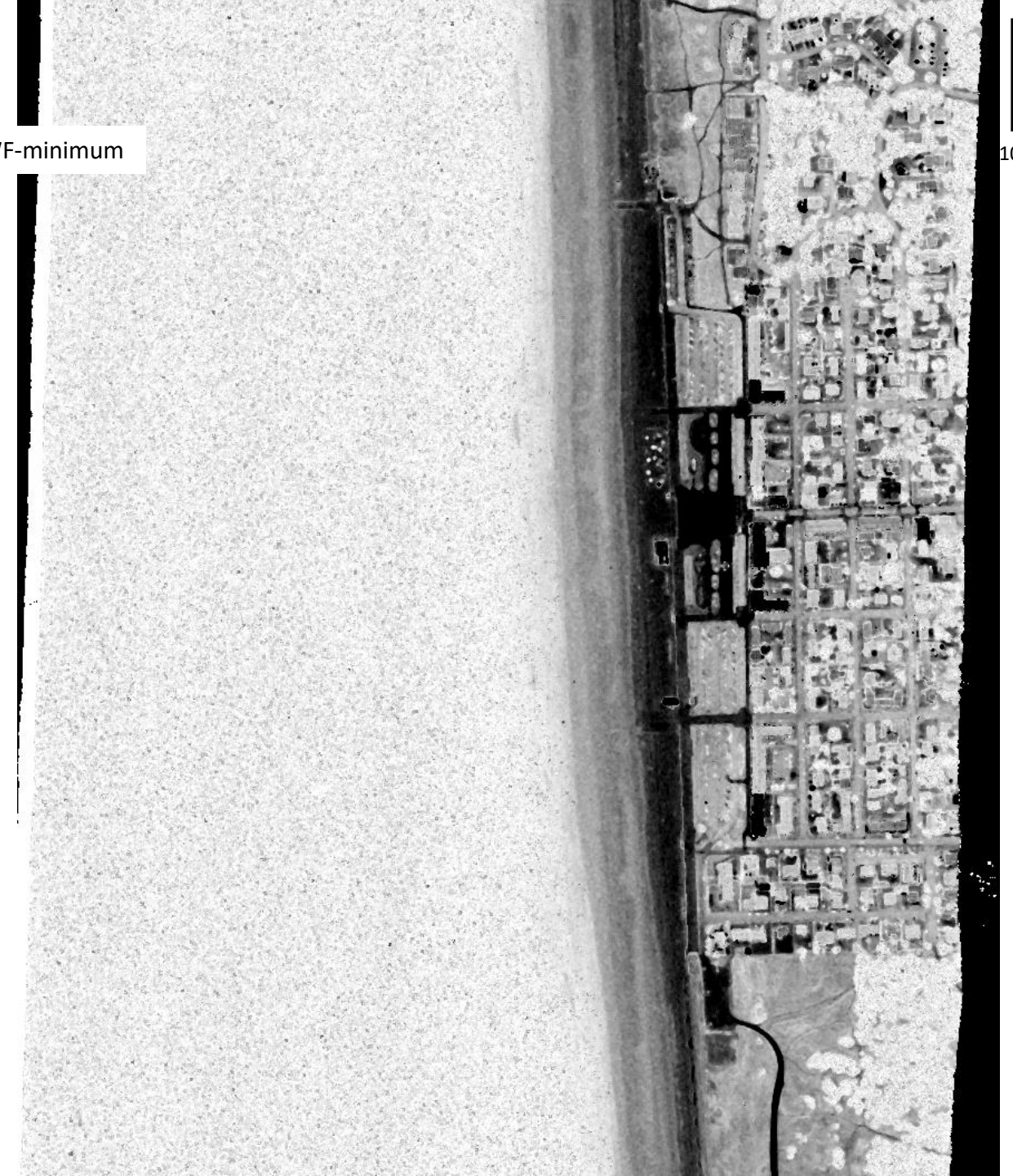
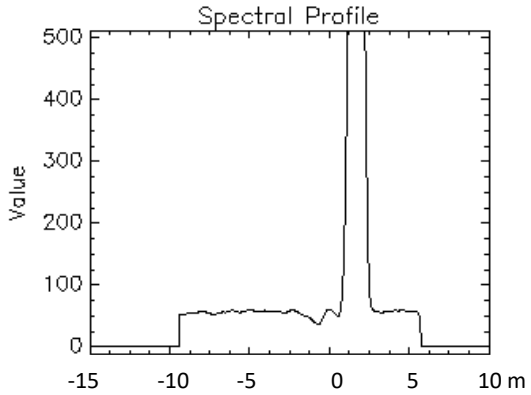
Notre-Dame-de-Monts-20200729-30-green-FWF-minimum



Minimum intensity of green FWF showing a strong contrast between dry and wait sand on the beach. Nots the ringing effects on the left of the FWF peak.

Exemple de sable sec



- Minimum FOC vert

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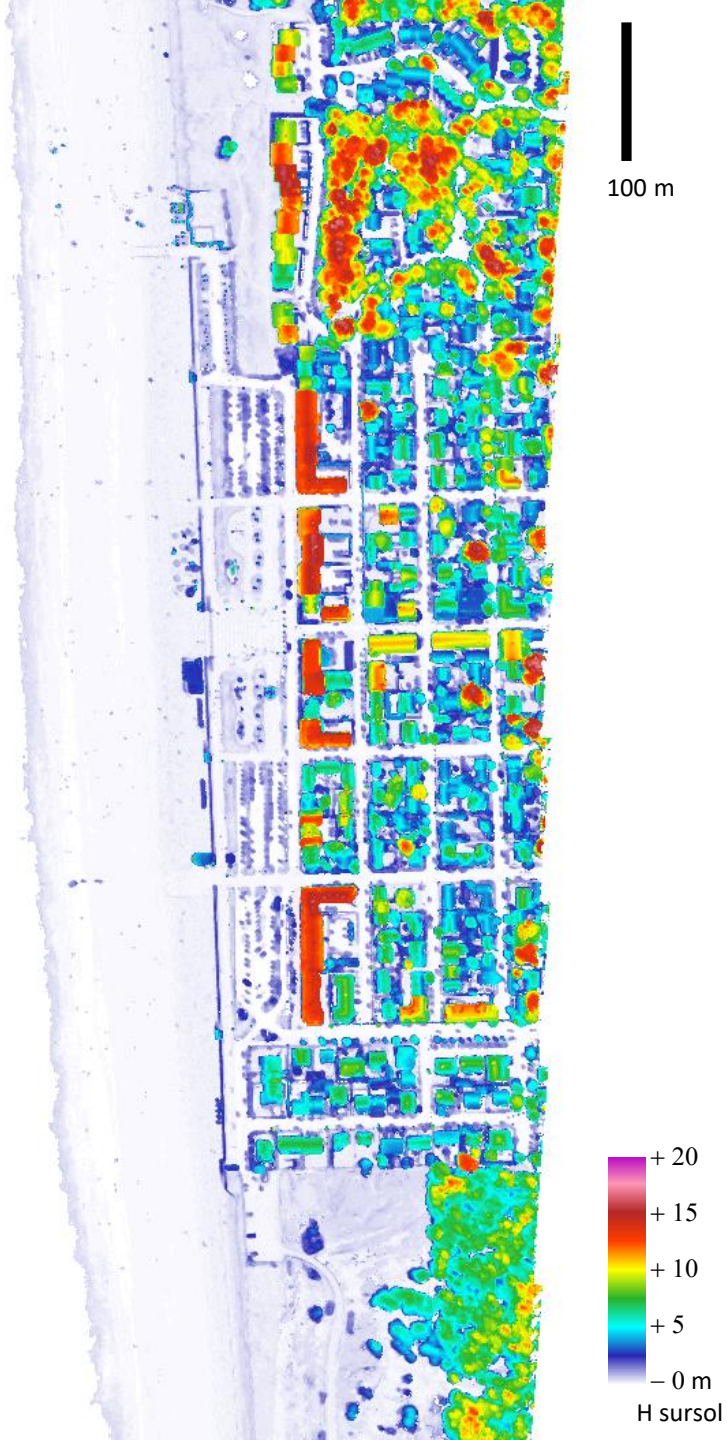
Notre-Dame-de-Monts-20200729-30-MNH-vert-infrarouge-FOC_MNS-MNT

Digital Height Model (DHM) combining DSM-DTM and FWF width for low vegetation detection.



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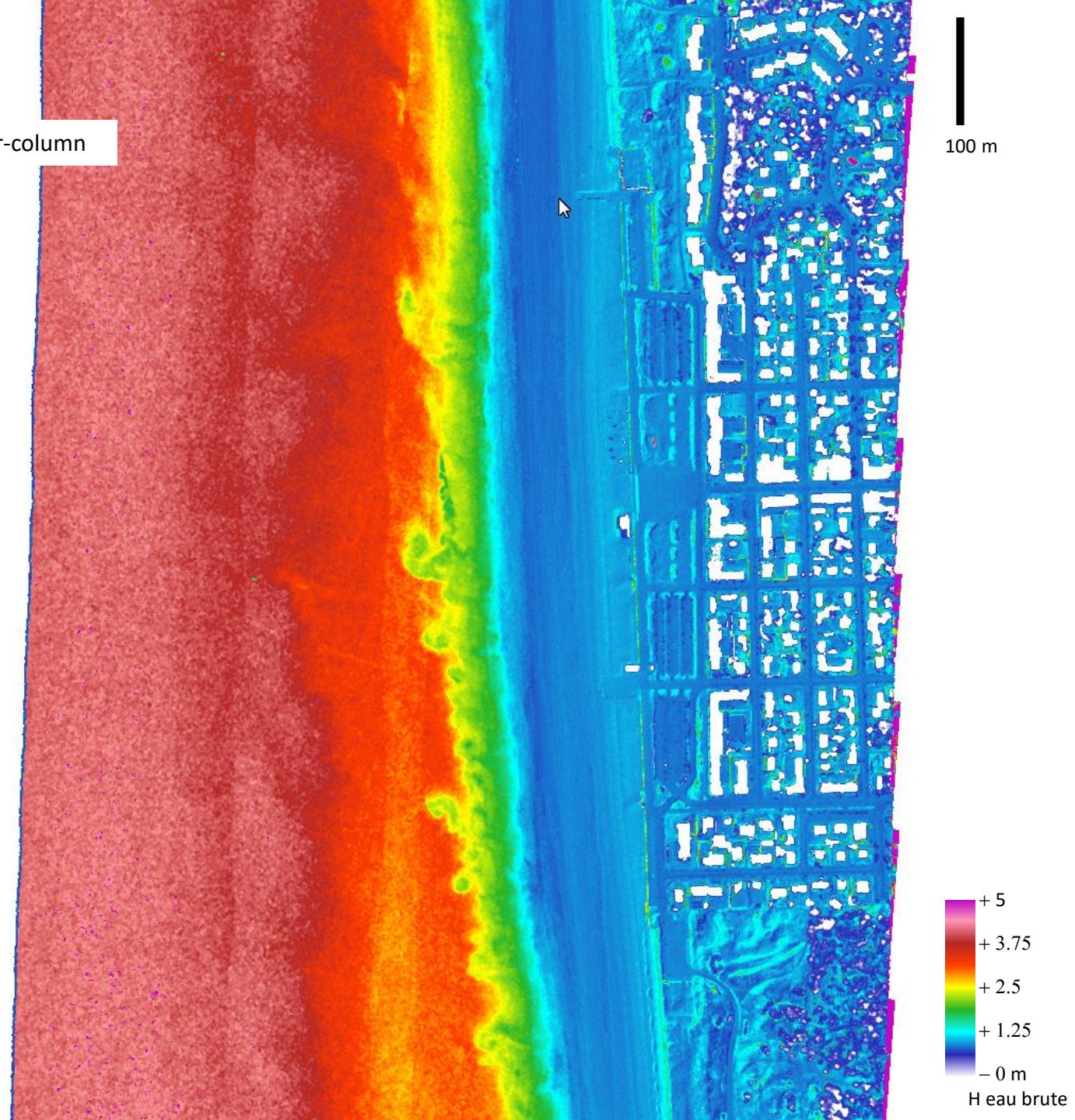
Notre-Dame-de-Monts-20200729-30-FOC-water-column

Raw water column calculated between green bottom and green-infrared water surface.



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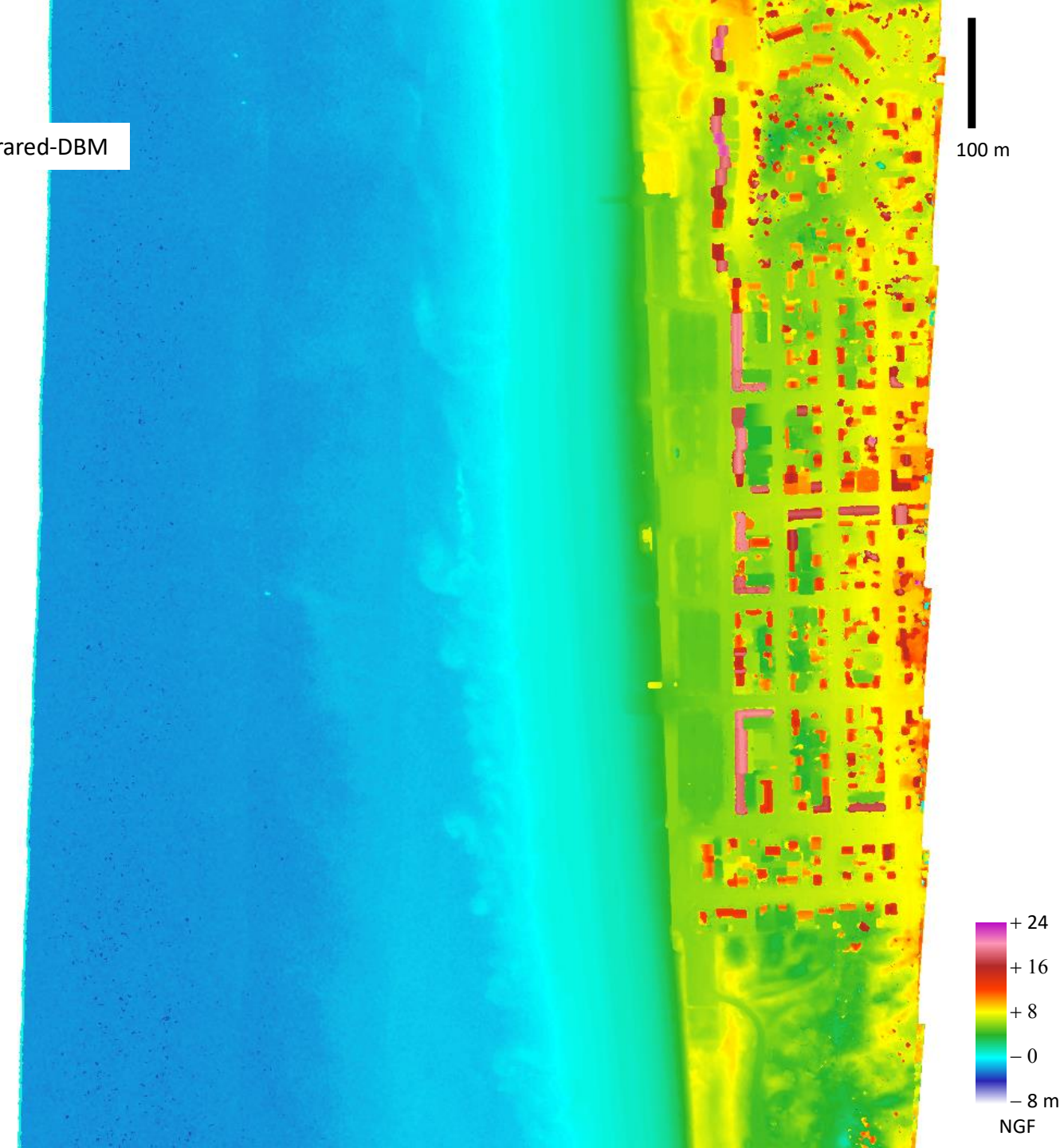
Notre-Dame-de-Monts-20200729-30-green-infrared-DBM

Digital Bathymetric Model (DBM) or bottom envelop of the best level among:

- green discrete echo,
- FWF calculated echo or
- end of FWF attenuation on the sea floor

The bathymetric correction use a water index of 1.34. The mean incident angle is 12° and the field of view was 20° (plus or minus 10°).

Local turbid current appears along the beach.



With bathymetric correction

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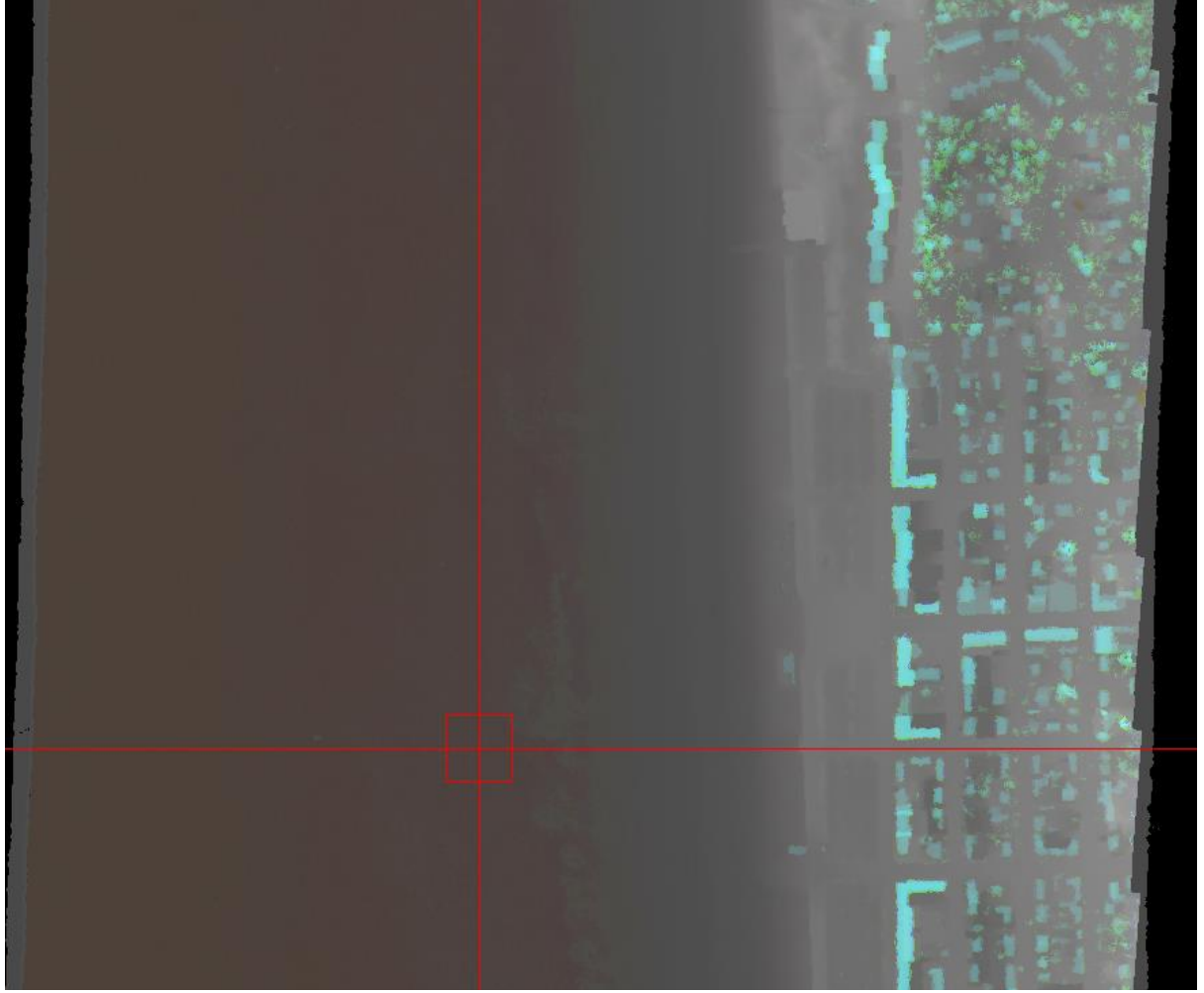
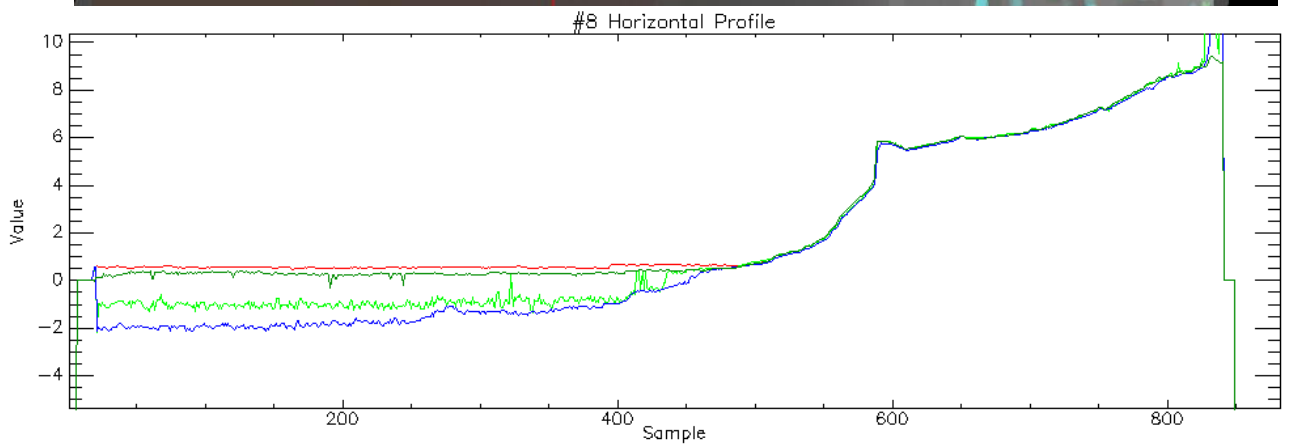
Notre-Dame-de-Monts-20200729-30-All-DEM

Digital Elevation Model (MNE) gathering all results in a multi-channel image.

R = discret infrared DTM
G = last green FWF echo
B = base or end of the FWF attenuation on the sea floor.
Only the base of the FWF can detect the bottom in a moderated turbid water.



Rue des Marins



- DTM discrete infrared
- DTM discrete green
- Last green FWF echo
- Base of the FWF

With bathymetric correction

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