



## Full wwPDB EM Validation Report ⓘ

Mar 10, 2026 – 12:10 AM UTC

EMDB ID : EMD-0513  
Title : Subtomogram average of S\_layer structure on the outer membrane surface of  
Thioglobus autotrophicus EF1 cell  
Authors : Nicastro, D.; Zhao, X.W.  
Deposited on : 2019-01-30  
Resolution : 35.00 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMMapValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

EMDB validation analysis : 0.0.1.dev132  
Validation Pipeline (wwPDB-VP) : 2.49

# 1 Experimental information

Property	Value	Source
EM reconstruction method	SUBTOMOGRAM AVERAGING	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of subtomograms used	1840	Depositor
Resolution determination method	FSC 0.5 CUT-OFF	Depositor
CTF correction method	Not provided	
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	1.52	Depositor
Minimum defocus (nm)	0.3	Depositor
Maximum defocus (nm)	0.5	Depositor
Magnification	26000.0	Depositor
Image detector	DIRECT ELECTRON DE-16 (4k x 4k)	Depositor
Maximum map value	159.335	Depositor
Minimum map value	151.281	Depositor
Average map value	154.226	Depositor
Map value standard deviation	0.695	Depositor
Recommended contour level	155	Depositor
Map size (Å)	385.0, 385.0, 220.0	wwPDB
Map dimensions	70, 70, 40	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	5.5, 5.5, 5.5	Depositor

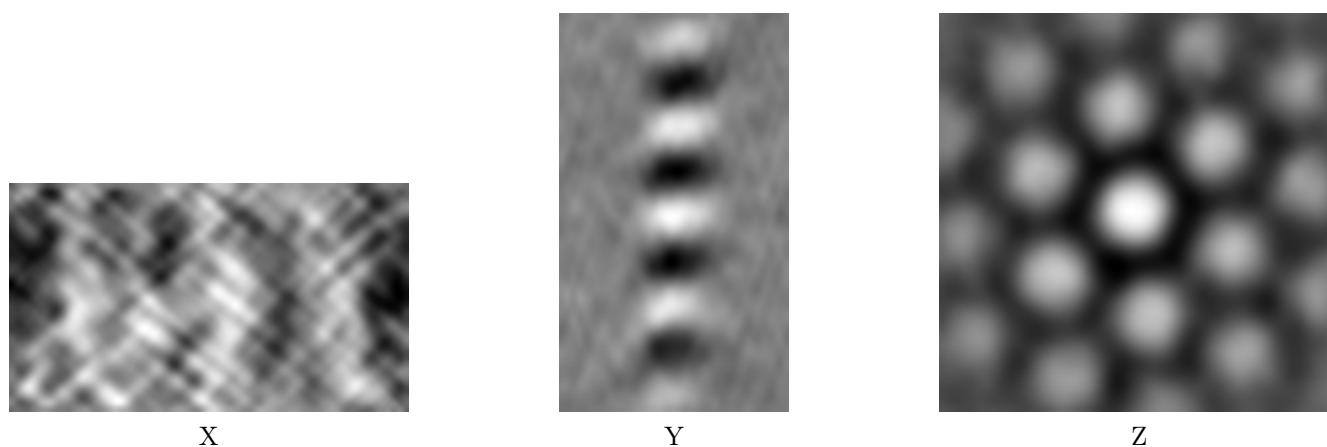
## 2 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-0513. These allow visual inspection of the internal detail of the map and identification of artifacts.

No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 2.1 Orthogonal projections [i](#)

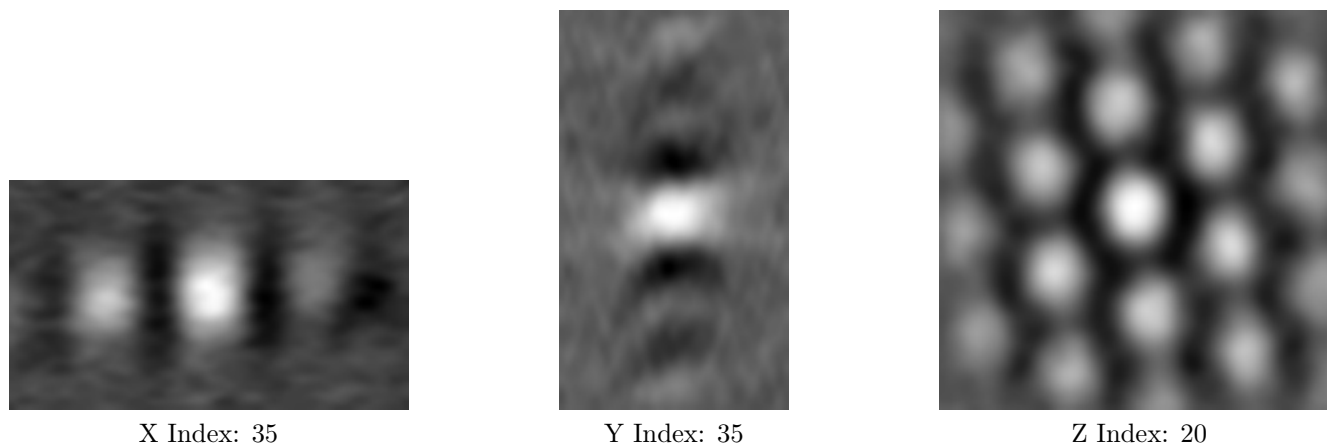
#### 2.1.1 Primary map



The images above show the map projected in three orthogonal directions.

### 2.2 Central slices [i](#)

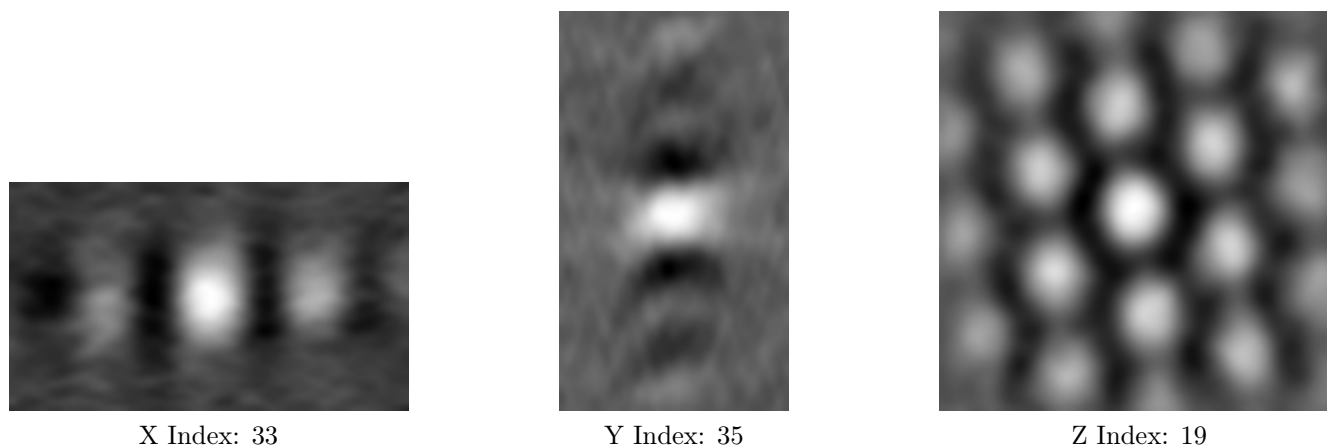
#### 2.2.1 Primary map



The images above show central slices of the map in three orthogonal directions.

## 2.3 Largest variance slices [i](#)

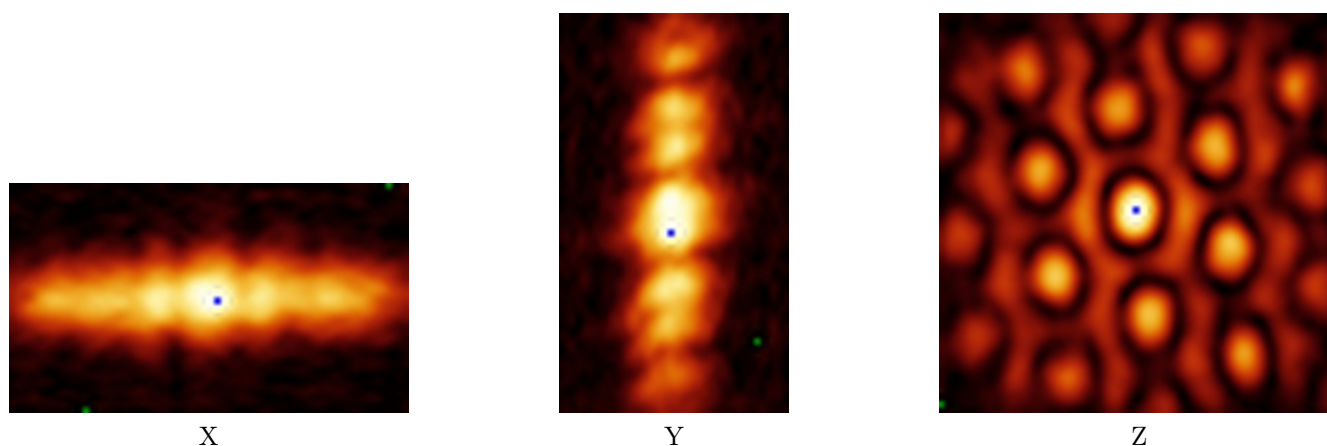
### 2.3.1 Primary map



The images above show the largest variance slices of the map in three orthogonal directions.

## 2.4 Orthogonal standard-deviation projections (False-color) [i](#)

### 2.4.1 Primary map



The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

## 2.5 Orthogonal surface views

This section was not generated.

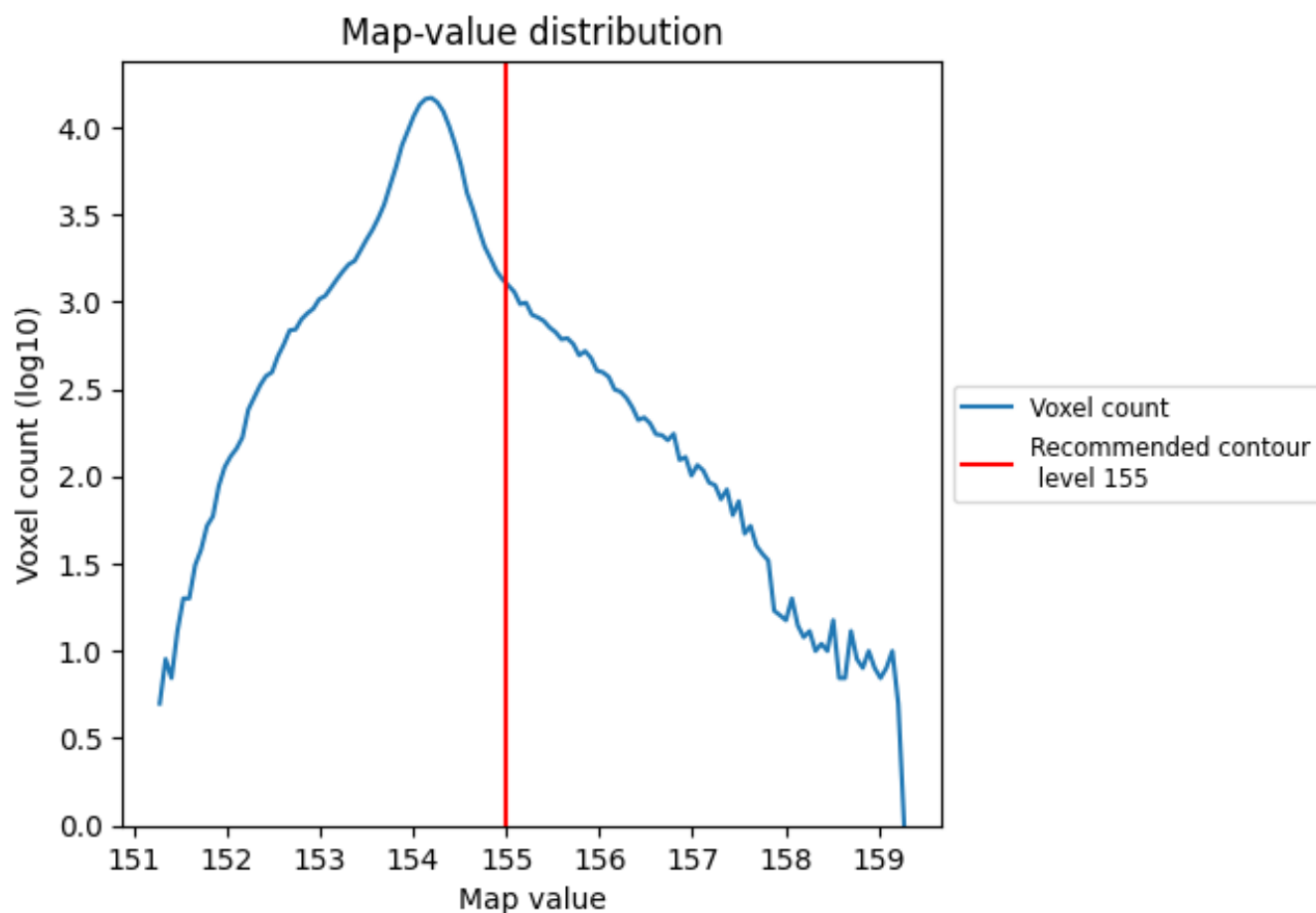
## 2.6 Mask visualisation

This section was not generated. No masks/segmentation were deposited.

### 3 Map analysis [i](#)

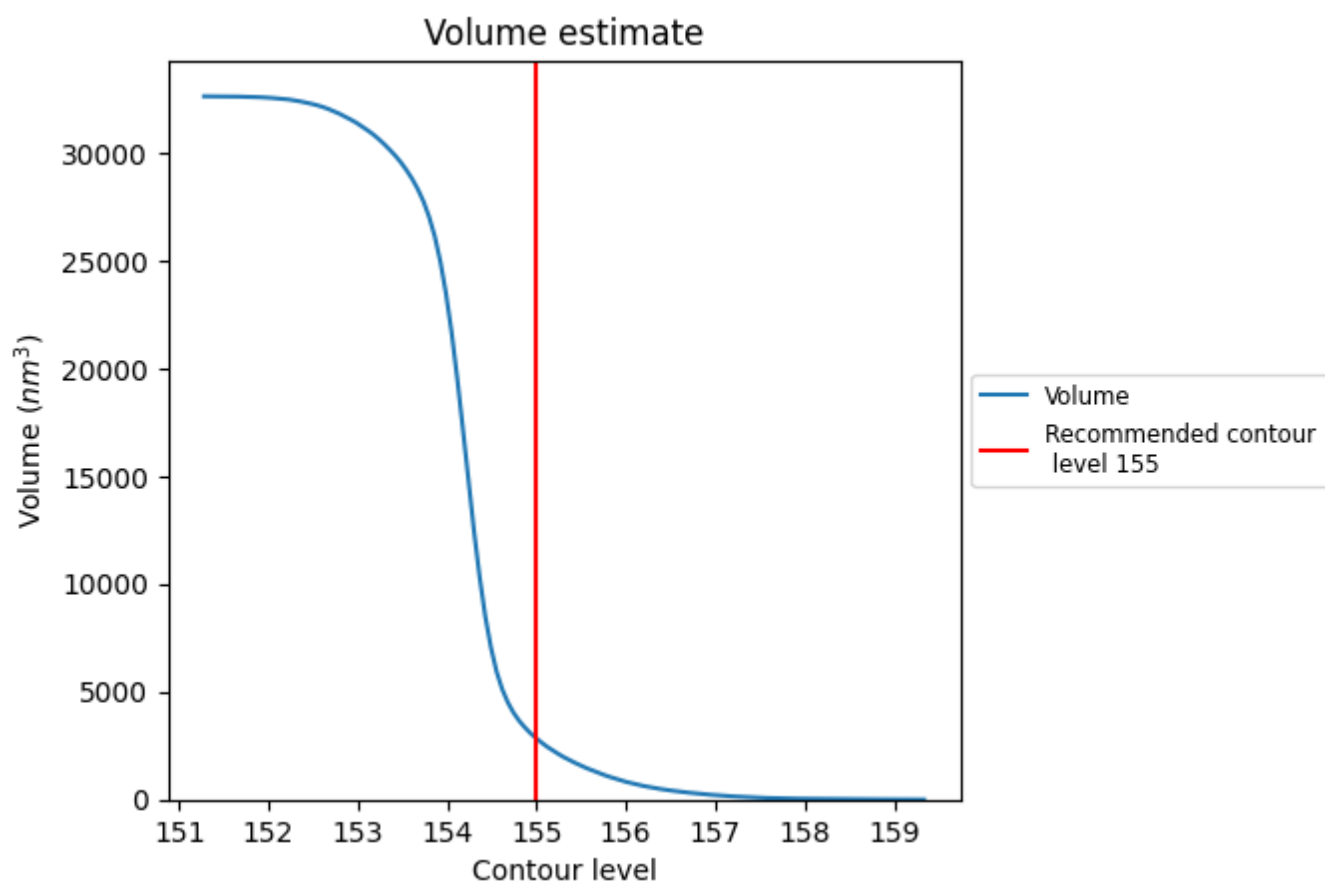
This section contains the results of statistical analysis of the map.

#### 3.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

### 3.2 Volume estimate [i](#)



The volume at the recommended contour level is 2831  $\text{nm}^3$ ; this corresponds to an approximate mass of 2558 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

### 3.3 Rotationally averaged power spectrum [i](#)

This section was not generated. The rotationally averaged power spectrum is only generated for cubic maps.

## 4 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.