QUICK GUIDE - SITE COMPLIANCE

Purpose:

To check if a particular IEC turbine class (e.g., IA) complies with the site and layout conditions.

SITE COMPLIANCE calculates the seven main checks required in IEC 61400-1 ed. 3 (2010) site assessments:

- Terrain Complexity
- Extreme Wind
- Effective Turbulence
- Wind Distribution
- Wind Shear
- Flow Inclination
- Air density

Three additional IEC checks are also included:

- Temperature range
- Seismic hazard
- Lightning rate

Note: From windPRO version 3.3 SITE COMPLIANCE supports the IEC61400-1 ed. 4 (2019) which includes additional three checks under Ultimate/Extreme conditions.

WEng 4.0 is required for including effect of obstacles.

Outline of Guide:

- 1. Data and models needed in SITE COMPLIANCE
- 2. Setup input data in SITE COMPLIANCE
- 3. IEC Main calculations in SITE COMPLIANCE
- 4. Re-calculate for a different WTG class
- 5. Calculation of Other IEC checks

1. DATA AND MODELS NEEDED IN SITE COMPLIANCE

SITE COMPLIANCE can be used at various levels of input data and external software licenses.

Full functionality is obtained in projects with site mast(s) with multiple heights, a long-term reference series and

valid external licenses for both WAsP and WAsP Engineering (WEng 4.0).

Minimum data level is a site mast with multiple measuring heights but no external model licenses.

Projects with no on-site mast require valid external licenses for both WAsP and WEng and a wind statistics (lib file) to complete all seven IEC main checks.

Make sure that your project at least contains following data/licenses before you start SITE COMPLIANCE:

- 1. A layout of WTGs
- 2. A digital elevation model, line or grid (TIN)
- 3A. A site mast with multiple heights
- 3B. A site data object (with a wind statistic)A valid WAsP licenseA valid WEng 3.0 or 4.0 license

In the following guide we assume a project allowing full functionality in SITE COMPLIANCE, i.e., a project with a site mast with multiple measuring heights and valid WAsP and WEng 3.0 or 4.0 licenses. We also assume that long-term corrected wind statistics have already been created from MCP, although this is not a general prerequisite.

2. SETUP INPUT DATA IN SITE COMPLIANCE

Start **Site compliance** from the main menu.

Modules	푸	\times
> Basis		
> Energy		
> Environment		
> Visual		
> Economy		
> Optimization		
> Electricity		
✓ Loads		
SITE COMPLIANCE (WTG suitability for site and layout)		
 IOAD RESPONSE (WTG load and lifetime estimation) 		
> Operation		
> Cluster Services		
> Other		

Main - tab

In this example we have both **mast and flow models** available, so we check this option.

Mark the flow models available: WEng (check), WAsP (check) and WAsP-CFD (check). In this example we have a site data object with a long-term corrected wind statistics available (check).

For the WTG positions in this example, we wish to test an IEC class of IA. You may select this class specifically via **overrule WTG design class with** IA (dropdown box).

SITE COMPLIANCE (WTG suitability for site a	nd layout)		>
ain Mast data WTGs Mast-WTG Long t	rm correction 🖉 WAsP 🧭 WEng 🖉 IEC checks Description		
ame New Salem			
itte and layout check using: Mast data & flow model(s) Mast data only No mast data andy Ambient site result (*.steres) Offshore site	thys module:		
oad calculation / curtailment: include LOAD RESPONSE Apply sector curtailment			
lesdign standand: [EC51400-1 ed. 3 (20) ○ Use design class from WTG object ④ Overrule WTG design class with Basic design parameters Wind speed class Vref [m(s] Vmean [m/s] k[-]	0) - 2, -		
Turbulence class Iref [-]	A B C 0.36 0.34 0.32		
Certification history of SITE COMPLIAN	E / LOAD RESPONSE: Incoming		

Alternatively, the WTG class may be defined individually in each WTG object prior to starting SITE COMPLIANCE.

Mast data - tab

Here you see a list of all the Meteo objects in the project. Check the site mast(s) you want to use and it will expand and show the heights to be selected.

Purpose should be **Site mast** (default) and you must define the **Main height** (check) and the heights to be **used in shear calculations** (multiple checks).

Main Mast data WTGs Mast-WTG	Long term corr	ection 🖉	WAsP 🖉 WEng	Ø IEC che	cks Descripti	on				
Name	Purpose	Main height	Use in shear calc (min 2 heights)	Sample rate [min]	Duration (enabled, wsp8dir) [years]	Recovery (enabled, wsp8dir) [%]	Recovery (enabled, wsp&dir&ti) [%]	First	Last	
V V New Salem #1 - North FINAL	Site mast -									
¥ 59.23m -		۲		10.0	1.0	95.3	83.0	01/10/2007 00.0	30/09/2008 23.4	
Mean wind speed										
Wind direction										
Turbulence intensity										
¥ 48.90m -				10.0	1.3	94.2	81.8	30/08/2007 12.1	23/12/2008 13.5	
Mean wind speed										
Wind direction										
Turbulence intensity										
✓ 39.98m -				10.0	1.3	94.2	80.5	30/08/2007 12.1	23/12/2008 13.5	
Mean wind speed										
Wind direction										
Turbulence intensity										

Note:

Any red data fields might indicate potential problems with the data, like too short data period, too low recovery rate or non-standard sample rate and should be investigated further in the Meteo object! Check your long-term reference series (if any) and set "Purpose" to "Long term reference" (dropdown) and define the "Main height" (check).

WTGs - tab

Select the layer(s) with your WTGs tab (check).

in Mast data WTGs Mast-WTG Long term correction 🖉 WAsP 🖉 WEng 🖉 IEC checks Description		
General Data		
Control Points		
Calculation Limit Rings		
V = WTG Area		
Nested HCLs		
Steepness Check		
- Roughness Lines		
- Decal Wind Data		
e all objects from selected layers		
New WTG (20)		
Existing WTG (0)		

Mast-WTG - tab

Select which site mast is representative for each WTG, default is nearest site mast.

Main Mast data WTGs Mast-WTG Long term correction 🖉 WAsP 🖉 W	Eng 🖉 IEC checks Descriptio	n	
Use nearest mast	O Manual mast-V	NTG matrix	
WTG	New Salem #1 - North FINAL	New Salem #2 - South FINAL	
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (89)		۲	
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (90)			
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (91)		۲	
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (92)		•	
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (93)		۲	
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (94)		•	
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (95)		۲	
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (96)		•	
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (97)		۲	
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (98)		۲	
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (99)		۲	
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (100)		٠	
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (101)		٠	
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (102)			
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (103)		۲	
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (104)		٠	
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (105)	•		
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (106)			
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (107)	•		
Siemens SWT-2.3-93 60Hz 2300 92.6 101 hub: 80.0 m (TOT: 126.3 m) (108)		۲	

WAsP - tab

Match each mast in the list with the relevant site data object that contains the long-term corrected wind statistics based on that mast (dropdown).

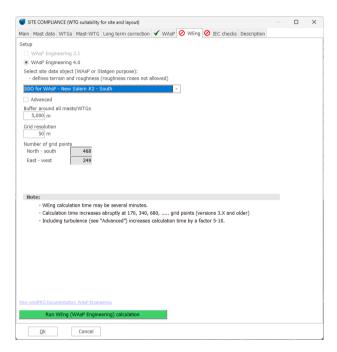
SITE COMPLIANCE (WTG suitability for site and layout)	NC checks Description	
	BC checks Description	
urrent WAsP version: WAsP 12		
etup		
Select site data object (Statgen purpose): - defines terrain and roughness (roughness roses not allowed)		
SDO for STAGEN -		
✓ Use obstacles		
 Calculate shear (Hub height +/- 0.5 rotor diameter) Include calculation overview and check 		
Edit WAsP parameters		
Euro What parameters		
Run WAsP calculation		
Kun WASP calculation		

Press the yellow **Run WAsP calculation** button. The red stop icon on the WAsP tab becomes a green tick mark when WAsP is done.

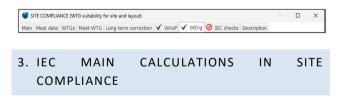
💔 SI	ITE COMPLIA	NCE (W	rG suitability	for site and layout)									×
Main	Mast data	WTGs	Mast-WTG	Long term correction	1	WAsP	0	WEng	0	IEC checks	Description		

WEng - tab

Select a site data object (dropdown) to define the terrain and roughness files to be used by WEng.



Press the yellow **Run WEng (WAsP Engineering)** calculation button. The red stop icon on the WEng tab becomes a green tick mark when WEng is done. Note that WEng may take several minutes for large projects.



The **Calculations** tab is where the calculation of the IEC checks takes place.

Mark all the **Main checks** (check) to prepare a full site assessment. This enables an "Edit" button for each check which is ready for calculation. Notice that **Terrain complexity** check is required by the effective turbulence check. Notice the "Result legend":

Red = Critical

Issues likely to hamper the project - must be approved by the manufacturer.

Yellow = Caution

Issues not likely to threaten the project but should be discussed with the manufacturer.

Green = OK

Unlikely to cause problems to the project.

Terrain complexity - check

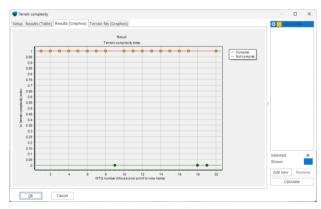
Start the Terrain complexity check by pressing Edit.

You only have one active elevation model, the Active DEM (Digital elevation model).

Terrain complexity				2
up		 Activ 	e DEM	
me ive DEM				
Active elevation model (Line or Elevation grid object) Grid resolution: 100 m				
Default resolution fulfills IEC requirement: ≤ min(100m & 1.5xHH).				
Offshore (flat terrain assumed)				
	1			
		Selected		
		Selected		ì
		Add new	Ren	
				-
		Calc	ulate	

Press Calculate (lower right).

This enables more tabs showing the results of this IEC check. Notice the yellow square in the upper right corner indicating that in this case the overall result of the check is "Caution", as the terrain complexity as the site is complex.



Effective turbulence - check

The Effective turbulence check is maybe the most complex of the IEC calculations. This check does not

result in a single result per WTG, but the effective turbulence must be calculated and checked for a range of wind speeds.

Press **Edit** to initiate the calculation.

Fortunately, the default settings will usually be a good choice. The setup has three main decisions/sections. **Turbulence data**, defines ambient turbulence and it should be handled. **Propagation model**, defines how/if the turbulence data shall be transferred from the mast to each WTG position and hub height. **Frandsen model**, defines the parameters in the Effective turbulence calculation, mainly the **Wöhler exponent**, where m=10 represents fiberglass composites.

Setup				C	Mast	WEng	
Name							
Mast_WEng							
Method							
Estimation of 90% guantile	 Normal approximation (kp=1.28) 	 Weibull quantile 					
Turbulence data							
Ambient turbulence from mast measured	arements		(quality: A)				
Mean or sector wise -	use bins N> 10 Use fit for all bins	Include Charnock effect (offshore only)					
St.dev. o weighted mean -	use bins N> 50 V Use fit for all bins	Auto Linear fit Robi	ust fit				
Ambient mean turbulence from model							
Mean σ 🔿 WEng	WAsP-CFD / Flowres		(quality: B/C)				
St.dev. o Assumption COV =	0.3 (COV is St.dev./Mean)						
Propagation model							
Scale turbulence using							
 WASP-CFD / Flowres turbulence 	(time series)		(quality: A)				
WEng turbulence			(quality: A)				
WAsP sector speed-up			(quality: B)				
Scaling method:							
 Asymptotic 	Constant ø-error	niform					
O No scaling			(quality: -)				
Turbulence structure correction							
Complex terrain correction (Cct) from	Complexity check WEng turbul Limit facts	lence components O No correction or to >=1					
Frandsen wake model							
No wakes Wöhler exp	oonent: m= 10 Wake width: (Fixed (21.6°) Ovariable					
Large wind farm correction	matic All WTGs/sectors	No WTGs/sectors			lected		ł
Sector management				3			1
	VTG wakes within R< 0.0 Rotor diameters	Advanced sector curtailment		1	dd new	Rem	10
Simple sector curtailment Exclude V							
Simple sector curtailment Exclude V					Calc	ulate	

Press calculate.

Results (Graphics) present the results graphically and the relevant check interval, here from 9 to 25 m/s. Light red highlights where the calculated WTG effective turbulence exceeds the IEC limit (here at low wind speeds) within the check interval.



Click OK and the turbulence calculation gets an overall yellow result. Thus, the WTG effective turbulence exceeds the IEC limit for some wind speeds, but not in a critical way.

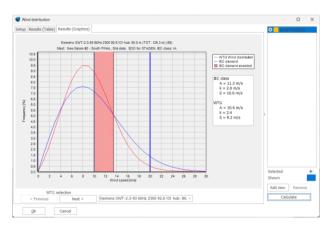
Wind distribution - check

Press Edit to initiate the Wind distribution check.

Wind distribution		- (
etup.	0	Disease office	ine ine
lame			
VAsP Weibulls			
WASP-CFD sector Weibulls (via WASP wind statistics)	(quality: A+)		
Flowres sector Webulls (via propagation of times series)	(quality: A+)		
WAsP sector Weibulls	(quality: A)		
Mast sector Webulls and sector shears (mast shear required)	(quality: B)		
Mast sector Weibulls directly	(quality: C)		
Downscaled sector Weibulls (via dowescaled times series)	(quality: C)		
	T		
	Selec		
	Shov	m	mov
	Shov	m	mov

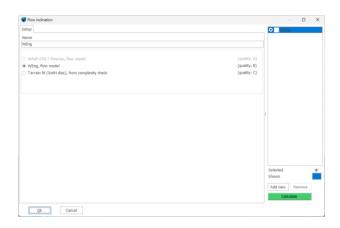
In most cases, a WAsP calculation has been run prior and these results predicted at each WTG will then be the default option. Hence with this setup is default option is **WAsP sector Weibulls**. Press **Calculate**.

In this case the check is not fully passed. In **Results** (Graphics), light red highlights wind speeds within the check interval where the IEC limit is exceeded.

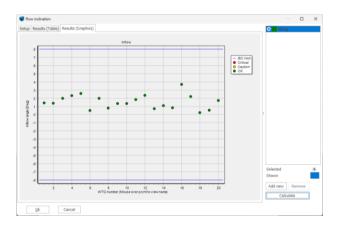


Flow inclination check

Press Edit to initiate the Flow inclination check.



The inflow angles may be estimated using either the flow result from **WEng** or from the **Terrain complexity** calculation. We use **WEng** as it is the default option and expected to produce the best results. On the **Result (Graphics)** we can see that all angles are within the IEC limits of +/-8 degrees; all the dots are green (OK) and the overall result marker in the upper right corner is also green.



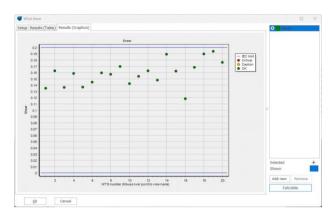
Wind shear - check

Press Edit to initiate the Wind shear check.

Wind shear						\times
Setup			. 1	• WAsP		
Name						
WAsP						
Flowres propagation of mast shear heights Wrog shear adjusted using WErg error on mast shear *) Ward* whare sheared using WAR4 Person on mast shear *) Ward*-CPD +/-SIDD shear Wide*-CPD +/-SIDD shear Words shear Most shear assumed representative for all WTGs		(quality: A) (quality: A) (quality: A) (quality: A/B) (quality: A/B) (quality: C) (quality: C)				
 Downscaling +/- ½RD shear 		(quality: C)	:			
Mast shear based on:						
 Frequency tables 	Concurrent samples					
*) assumes negligible turning of wind vertically and across site.	0			Selected		•
				Add new Calcule	Remove ite	
Qk Cancel						

Default selection for this project is wind shear calculation using WAsP +/-½RD shear. Again, after

pressing **Calculate** a Results (Graphics) tab appears and shows that for all WTGs wind shear is within the IEC limits.



Air density - check

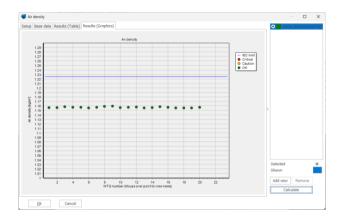
Press Edit to initiate the Air density check.

Calculation of this check may be based on temperature (and pressure if available) measurements on the **site mast** or using statistical data from the GHCN Climate database. As no temperature or pressure measurements are available from the site mast of this particular project the database is used.

🍯 Air density						×
Setup			0	GHCN_M	NDAN E	EXP S
Name						
GHCN_MANDAN EXP STN V	3 2014					
 Site or climate mast wit 	h Temperature (and Pressure) (q	juality: A/B)				
 GHCN Climate database 	(q	juality: C)				
Climate database	Station: MANDAN EXP STN V3 2014 re and Pressure from meso-scale data (q	juality: C)				
			Selecte	ed		
			Shown			
			Add n	ew R	emove	
				Calculate	,	
Qk Cr	incel					

Pressing **Calculate** reveals that all WTGs are within the IEC limit of 1.225kg/m³.

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Extreme wind - check

Start the Extreme wind speed calculation by pressing Edit.

Caterne wind		- D X
Setup		POT-R_WEng
Name		
POT-N_WEng		
Statistical model		
Annual Maximum & Gumbel *)	(quality: A)	
POT-N & Gumbel N = 20 M = 4 days	(quality: 8)	
Webull parent (EWTS/Bergström) N = 2,302	(quality: C)	
C Riss NCEP/NCAR extreme wind atlas	(quality: C)	
C Eurocode EN1992-1-4 Base values =): Wind speed m/s Height 10 m Roughness 0.0500 m	(quality: A-C)	
 Direction 		
Propagation model		
WASP-CFD / Flownes (advanced mast-to-WTG speed-up)	(Quality: A+)	
WEng (sector-wise mast-to-wtg speedup) WAsP (sector-wise speedup)	(Quality: A) (Quality: B)	
Shear (sector-wise speeulop) Shear (sector-wise vertical extrapolation only)	(Quality: C)	
No model (mast assumed representative)	(Quality: C)	
Additional model settings		
Didex correct POT-N & Gumbel *)		
Air density at high wind speed 🔄 Use p = kg/m ³ 🛞 Use individual mean values from Air density		
thdude 3s gust estimate Kp = 3.0		
k-factor pre-conditioning k = 2.31 Dafault is mean k for all WTGs		
Safety factor correction for COV > 0.15 (EC61400-1 ed. 4)		
Spectral correction Theoretical : -5/3 Calibration mast		Selected
 Input base values from national amendment to EN1991-1-4 (e.g. DDI, 85, DS) or other national code. 		Shown
*) requires ≥5 years data		
		Add new Remove
		Calculate
Dk Cancel		

The default **Statistical model** with this setup is the **POT-N & Gumbel** method. **N** is the number of extracted storm events and can be adjusted, but 10-20 events is usually a good choice. Δt is the minimum time separation required for storm events to be independent. Four days is a typical value for synoptic events (extratropical storms).

After pressing **Calculate**. The Results (Table) summarizes the 50-year extreme wind speed result for each WTG and the IEC limit for the WTG class. In the case shown all WTGs are OK (green), and hence the overall result for the park (see square in upper right corner) is also green (OK).

Name	Mast	Site data	Class	IEC max (Vref) [m/s]	Corrected extreme wind speed (50y) [m/s]	Extreme wind speed (50y) [m/s]	Wind speed [m/s]				
> Siemens SW	New Salem #2	SDO for STAGEN	1A.	50.0	36.0	36.9					
> Siemens SW	l New Salem #2	SDO for STAGEN	3A	50.0		36.8					
> Siemens SW	New Salem #2	SDO for STAGEN	JA.	50.0		35.6					
> Siemens SW	New Salem #2	SDO for STAGEN	54	50.0		36.4					
> Siemens SW	New Salem #2	SDO for STAGEN	JA.	50.0		35.6					
> Siemens SW	New Salem #2	SDO for STAGEN	34	50.0		36.2					
> Siemens SW	New Salem #2	SDO for STAGEN	JA.	50.0		34.9					
> Siemens SW	TNew Salem #2	SDO for STAGEN	JA.	50.0		35.7					
> Siemens SW	New Salem #2	SDO for STAGEN	3A	50.0		34.8					
> Siemens SW	New Salem #2	SDO for STAGEN	38	50.0		36.6					
> Siemens SW	New Salem #2	SDO for STAGEN	IA.	50.0		35.2					
> Siemens SW	New Salem #2	SDO for STAGEN	34	50.0		34.7					
> Siemens SW	Thew Salem #2	SDO for STAGEN	JA.	50.0		35.4					
> Siemens SW	í New Salem #1	SDO for STAGEN	3A	50.0		32.0					
> Siemens SW	New Salem #2	SDO for STAGEN	3A	50.0		34.9					
> Siemens SW	New Salem #2	SDO for STAGEN	18	50.0		36.1					
> Siemens SW	New Salem #1	SDO for STAGEN	34	50.0		32.8					
> Siemens SW	TNew Salem ∉1	SDO for STAGEN	3A.	50.0		32.0					
> Siemens SW	New Salem #1	SDO for STAGEN	IA	50.0		31.2					
> Siemens SW	New Salem #2	SDO for STAGEN	3A.	50.0		35.9					
								Selected			
								Shown			Í
											1
								Add new	Remove		
								Cak	ulate		

You may click **Add new** (lower right corner) to add another calculation setup for extreme wind to compare the results. Try selecting e.g., "Weibull parent (EWTS/Bergström)" and press **Calculate**. Now you have two result options you can compare. Try also "Risø NCEP/NCAR extreme wind atlas" which covers most of Europe and US. Each calculation adds a line in the right pane. Click on a calculation in the pane to highlight it and view its setup and results tabs. The calculation which is checked defines the result to be used in the site assessment.

Now all the main checks have been calculated and it is time to have a look at the overall result.

In this case four of the main checks are OK, three checks is caution (Terrain complexity, Effective turbulence and Wind distribution). Thus, the suitability of an IEC class IA wind turbine should be discussed with the manufacturer.

4. CALCULATION OF OTHER IEC CHECKS

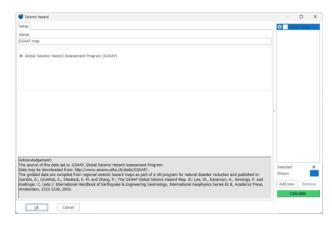
Check the three **Other checks**, **Seismic hazard**, **Temperature range** and **Lightning rate**.

These checks are more general and output a single value representative for the site and all WTGs. The IEC standard does not define specific limits for these checks, but their result values serve as input parameters to the turbine manufacturer's evaluations.

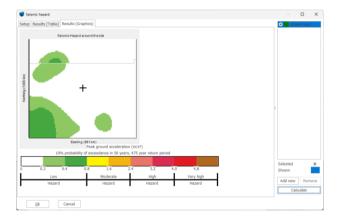
Seismic hazard check

Click **Edit** to open the check and click **Calculate** to perform it. This check leaves no calculation settings to the user.

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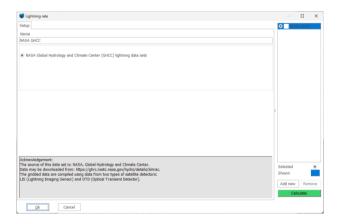
Result (Graphics) shows the variation of Seismic hazard around the site for an area of ca. 1000km by 1000km.



The **Result (Table)** illustrates that for this site the Peak Ground Acceleration (PGA) is very small and hence the Seismic hazard is very low.

Lightning rate check

Click **Edit** to open the check and click **Calculate** to perform it. This check leaves no calculation settings to the user.



Result (Graphics) shows the variation of Lightning rate around the site for an area of ca. 1000km by 1000km.



The **Result (Table)** illustrates that for this site the Lightning rate is low.

Temperature range check

Click **Edit** to open the check. A site mast with temperature is needed for this calculation.

There are two fit options for the on-site temperature distribution **Gaussian fit** and **Tail Gaussian fit**.

The default WTG temperature ranges, Normal (operation) and Extreme (survival), represent the standard WTG classes WTGs. Custom (Class S) temperature limits may be defined too as user input.

After setup press Calculate.

Temperature range						×
Setup Base data Results (Ta	able) Results (Graphics)		., J	O Ful	gauss	
Name						
Full gauss						
Select data and fit						
Temperature data (Site or 0	Climate mast)					
West mast						
Type of fit • Full gaussian fit Tail gaussian fit	Fit upper and lower fraction	10 %				
Temperature design limit	s					
	 Standard limits 	 Class S limits (insert below) 				
Normal temperature	Standard -10	Class S -10				
Tmin [°C] Tmax [°C]	40	40	1			
Extreme temperature	Standard	Class S				
Tmin [°C]	-20	-20				
Tmax [°C]	50	50				
				Selected		
				Selected Shown		
			1	SHOWN		
				Add new	Ren	nove
				Cal	culate	
Qk Can	cel					

Quick Guide - SITE COMPLIANCE

Temperature range										×	
Setup	Base data	Results (Table) Re	sults (Graphic	s)				0 Fu	l gauss	
Check		Tmin	[°C]	Tmax [°C]	hours < Tmin [h/year]	hours > Tmax [h/year]	Total hours outside range [h/year]	1			
	l range		-10								
Edrem	ie range		-20	50	6.0	6.0 			Selected		
									Add new Ci	/ Re	move
	Qk	Cancel						1			

In this example the result is ok, as no hours per year are expected outside the Normal or extreme range temperature range.