

The effects of weather on construction scheduling webinar

Question and Answers

Monday 22 October 2018

Questions / Comments	Answers
Can this tool be useful during planning? That is even before the project starts	Yes, the tool can be used forward (to plan how the weather will impact a construction schedule, that is, how activity duration will be extended) or backwards (once the project is completed). In the latter case the activity durations you input in the application correspond to actual durations instead of planned durations. results will provide you with the probability of that scenario having happened.
Can you recommend any good material I can read to expand my knowledge on the sine wave parameters (amplitude and shift)	More information in Sine Wave curves and all the mathematical rationale can be found in the paper published by the authors recently: https://doi.org/10.1080/01446193.2018.1478109
Weather related contract claims - you mention the tool. Please advise what tool can be utilised or purchased to assist with this ?	The tool is free. It can be accessed by anyone. For now it does not require users' profiles so that means all information stored can be accessed by anyone. In the future this feature will change, but for now we are just trying to gauge its usefulness.
Has the tool been validated using ACTUAL Construction projects?	The 'science' behind the tool was already validated in a series of three papers and experiments involving the construction of different construction projects (mostly bridges and buildings) in Chile (https://doi.org/10.1108/ECAM-02-2015-0024 Open access), Spain (https://doi.org/10.1016/j.autcon.2017.08.022 , restricted access) and now the UK (https://doi.org/10.1080/01446193.2018.1478109 , open access). The tool just tries to bring to practice what we developed at a theoretical level. But the results are already validated.

<p>Could be an incredibly useful tool. A training course might be a useful next stage!</p>	<p>Sure! We are willing to provide with more training once the tool is hosted in the final URL and when it has been polished (after receiving some feedback). Thank you for your supportive comment.</p>
<p>If I have a list of dates where a contractor wants to claim for delay due to a specific weather event. Can I input the list of dates and location and be told if it is valid?</p>	<p>Desirably, the schedule should be analysed completely, not just some of its parts. Only that way the results will be representative. If we just include some parts of it, we run the risk of wanting to include only those parts that have been most influenced by the weather (which would exaggerate the weather impact).</p>
<p>If it could look back on all dates then with a list that on x date you could do Y activity but not N activity would be useful</p>	<p>Maybe we have misunderstood your comment, but the predecessor/successor relationship among activities are not changed when the influence of the weather is evaluated. The tool only modifies the activity durations, not the order of the activities. All activities are schedule to start as soon as possible always.</p>
<p>Looks like an interesting tool for project planning or for retrospective assessment of weather impact. Can data be exchanged with other programme software, e.g. MS Project?</p>	<p>Not for now. If the tool proves useful we will write more code to allow it communicate with other standard planning software (e.g. MS Project, Primavera, etc). That also requires are significant effort (which means money to pay computer programmers). If people are happy with it we will undoubtedly bring it to the next level (the capabilities you mention).</p>
<p>Q1) Does the Northern Ireland maps include weather data from Eire and if weather data from Eire was not used does this distort the weather risk isobars;</p>	<p>The five Northern Ireland stations used were: Lough Fea, Portglenone, Aldergrove, Ballypatrick forest and Glenanne n^o2. No weather stations from Ireland were included, though, as the agency that handles weather data is different from the UK met office. We do not rule out including Irish weather stations, but for now that fall beyond the scope of this work. Contour curves in Ireland or in the sea are just mere approximations (as they do not contain close datapoints) and should be taken with much care (we actually advise not to rely on them).</p>

<p>Q2) Some forms of contract already define "adverse" or "exceptional " weather so has this been taken account of in the analysis?</p>	<p>Yes, the problem is that those definitions are necessarily very narrow and simplistic. By this we mean that need to focus on a few activities and/or types of weather variables and thresholds. But any construction project contains many activities and each one can be influenced differently. Besides, these influences change throughout the year. Such amount of calculations can only be performed by a computer. This is why we need a tool to handle them. However, once the tool is polished we intend to allow some level of customisation by its users (e.g. the specific weather variables and thresholds will be customised according to specific project needs).</p>
<p>Can we upload programmes to the tool or we always need to make the schedule in the tool?</p>	<p>The second, for now, you need to input all the information in the tool. We intend to enable communication with other scheduling tools in the future, though.</p>
<p>How tied in to the UK Met Office data is the methodology? i.e. how transferable is it to other countries? I wasn't sure how it was used for Spain. Did we get Spanish specific data?</p>	<p>Weather data is retrieved and curated by different agencies in different countries. Is Spain data was handled differently so we used slightly different combinations of weather variables and thresholds. However, most of the information (temperature, rainfall, winds, etc) are exactly the same. You can find more details in this paper: https://doi.org/10.1016/j.autcon.2017.08.022</p>
<p>What will be done with the data that was entered in the application? Will you sell that data? What about sensitivity of the data from being stolen?</p>	<p>Well, if some data is very sensitive we advise not to input it of course. We can delete the information if we are asked to anyway. Another possibility is to create the schedule with all its information and, after producing the reports, deleting all the activities information. We will create user profiles once we have Beta tested it.</p>
<p>What is the benefit to the creators? Assuming rich probability data?</p>	<p>We just develop this tool under a research project. We intend to make no profit out of it.</p>

<p>I think it would be a useful aid to planning. I think it shows that weather does not always play as big a part as Contractors might say it does.</p>	<p>We think it depends on the type of project and location. Sometimes weather is critical, sometimes it is irrelevant. We just provide a new way of anticipating the likely impact and try to do something about it (if necessary).</p>
<p>Can you please confirm all locations within the UK are covered with collected weather data or are there any areas still outwith the scope of this tool? Also, does the tool allow for elasticity of variables between the various construction activities?</p>	<p>The 102 weather stations used can be found in this document: https://drive.google.com/file/d/0BwljZJdVOIvMajZ3RHRqc0hVMzA/view?usp=sharing We are unsure about what you mean by 'elasticity'. If you mean changing the threshold of weather variables (from 10mm of rainfall to 30mm, for instance), no, it does not for now, but it will in the future to adapt every schedule to the needs of each project.</p>
<p>Is there any plans to extend this into the offshore industry? Can you model consecutive "no-working days"?</p>	<p>The type of weather information in the sea is rather different from the in-land weather information for many reasons. It is also handled differently. We would like to extend our research to that area, but it is not in our immediate priorities.</p>
<p>Do you any intention to develop this for internal trades/ conditions e.g. humidity/ temperature</p>	<p>Yes, but not in the short run. The tool only focuses on construction activities, not in the people that execute them. So weather variables like temperature and humidity (for Heat index values, for instance) will be part of an upcoming piece of research, but will not be included in the tool shortly).</p>
<p>Are you aware if the tool has been implemented by Major Oil & Gas Operators in Mega Offshore Oil & Gas projects? Particularly in the North Sea during harsh weather windows.</p>	<p>As we have answered to a comment above, we have no plans of extending our tool to off-shore projects. The type of weather information is retrieved and handled in a very different way. For now we have more than enough with the inland weather so as to consider other projects located in the sea. Thank you.</p>