A hybrid simulation & ML solution for the optimization of wood drying in kilns

An online simulation and data-based approach for the optimization and predictive maintenance of wood drying in kilns

SITUATION & CHALLENGE

— Dry kilns are energy-intensive industrial processes.

— The potential of optimizing the air flow via simulation and data modelling is big, reducing resistance and energy while enhancing drying efficiency.

SERVICE & APPROACH

— CFD simulations were first performed for several operational conditions and internal modifications.

— Legacy kiln data are collected and analyzed, then used to feed the ML model.

— A hybrid simulation/ML model was then built for the optimization of the wood drying in the kiln.

— Client can monitor the data live in e-DAP, then

— Predict the behaviour of the system using live data, plan operations or maintenance if needed.

IMPACT & ADDED VALUE

— The online solution can be licensed (ported on Azure Cloud) and maintained.

— The client predict the behaviour of the system using live data, plan operations or maintenance if needed.

E-DAP: the *end-to-end* data platform

From IoT sensing, through data engineering, dashboarding, ML/AI, digital twinning, to insight.

TransAT : the *CFD simulation* engine

A thermal-flow tool capable to predict the thermal-flow around the chillers in the data center's roof

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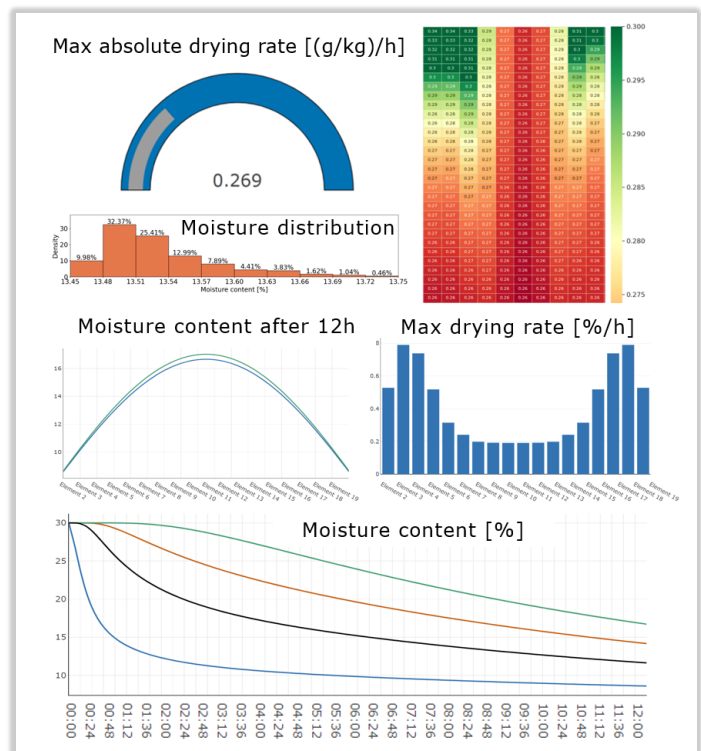
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