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Strong wind events, traditional building solutions, adaptation to climate change: learning from the past to educate for the future

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This presentation is about an educational experience in which high school students are comparing historical end recent strong wind events and investigating traditional architectures which were designed to resist such weather phenomena and which may now provide interesting insights for local climate change adaptation strategies.
The experience is being carried out in Friuli Venezia Giulia (FVG) region (1.200.000 inhabitants, about 8.000 km2) in northeastern Italy and it is part of a long standing educational project regarding weather and climate science, which has been developed by a high school (Liceo Scientifico “Galilei”) in Trieste in collaboration with the regional meteorological observatory (OSMER) belonging to the Regional Environmental Protection Agency (ARPA FVG) and with the non-profit organization UMFVG - Meteorological Union of FVG. Such educational activities are highly interactive and are often carried out through a peer-tutoring approach. In 2018 the Liceo “Galilei” students were also involved in promoting a survey about knowledge, perception and attitudes concerning climate change among their peers. 620 high school students answered the on-line questionnaire: some results will be presented as well.
The most recent activity in the educational project focuses on wind, adaptation and climate change.
The city of Trieste and the surrounding Carso highland are typically swept by a strong wind, the Bora, blowing from east-northeast in gusts often exceeding 110-120 km/h and reaching occasionally 160-170 km/h (daily average wind speed about 80-100 km/h). Over the centuries, people living in the area developed spontaneous architectures and building techniques in order to resist this strong wind, but in recent years other areas in Friuli Venezia Giulia have been affected by unusually strong wind events, related to severe weather phenomena (such as storms, thunderstorms, downbursts) and/or peculiar mesoscale meteorological situations. The impacts were serious and, as such situations are likely to occur more frequently because of climate change, local adaptation strategies and measures will be necessary in order to prevent and reduce risks and damages.
In this context, thirty “Galilei” high school students (age 17-19) are being involved in:
• analyzing climate statistics regarding the winds in FVG region;
• investigating both extreme wind (Bora) events that took place in the past in the area of Trieste and the most recent ones that occurred in other areas of FVG region;
• collecting information and evidence about spontaneous architectures and building techniques employed in Trieste and Carso houses, industrial facilities, harbor area etc. in order to resist the Bora gusts;
• learning about global and local climate change and about mitigation and adaptation concepts.
This process is helping students to become aware of the importance of adapting to the local climate and, increasingly, to a changing climate. Identifying adaptive solutions to resist strong wind events may provide cues for discussing possible adaptation strategies also with local stakeholders and decision makers.
The outcomes of this work, together with the results of the 2018 survey, will be presented to the other students of the school and to the public, through conferences, online videos, radio broadcasts etc.