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Scuola di Scienze e Tecnologie
Sezione Geologia
<http://www.unicam.it/geologia/unicamearth/>

Istituto di Istruzione Secondaria Superiore

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Activity C4. **THE LANDSCAPE CREATED BY THE FORCES OF NATURE.**

ITALY – Tuesday February 23rd, 2021



Energy from water: Alluvial terraces origin

2D scientific liceum. School: IISS Polo Carlo Urbani - Porto Sant’Elpidio



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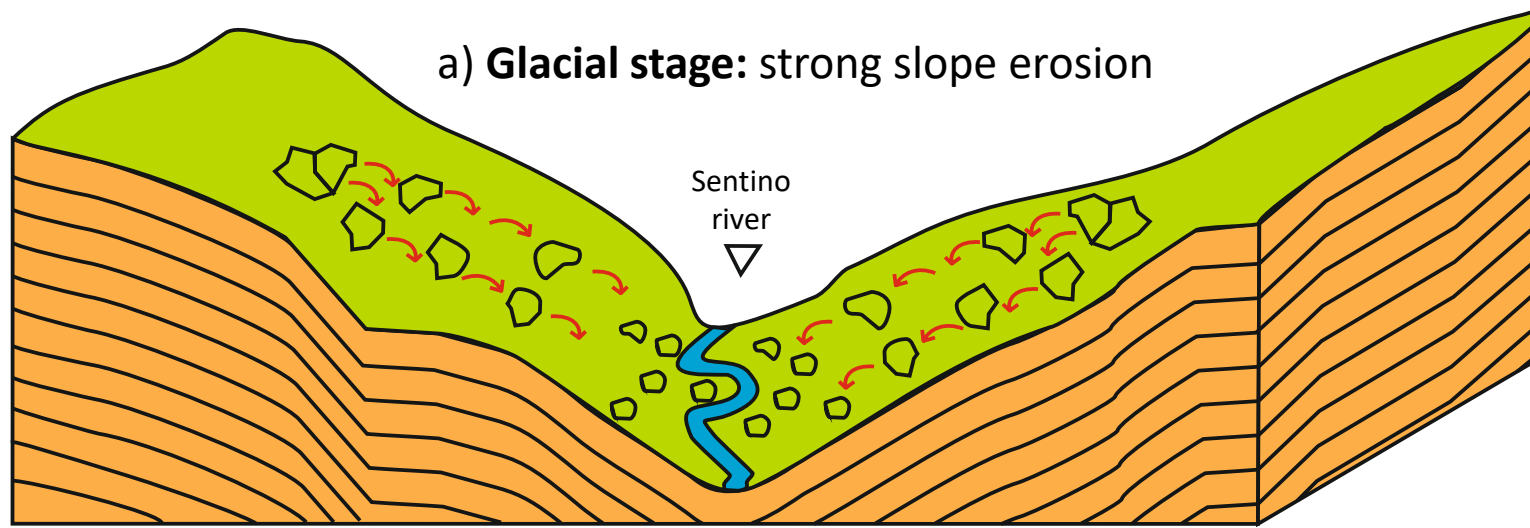
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Glacial stage. Alluvial debris production

- During the glacial stage the majority of the river water was trapped in the ice caps. So, on one hand the river could not escave the bedrock, on the other hand there was a strong erosion of the bedrock, due to the cold temperature (fig. a)



Debris production during ice stages



Debris



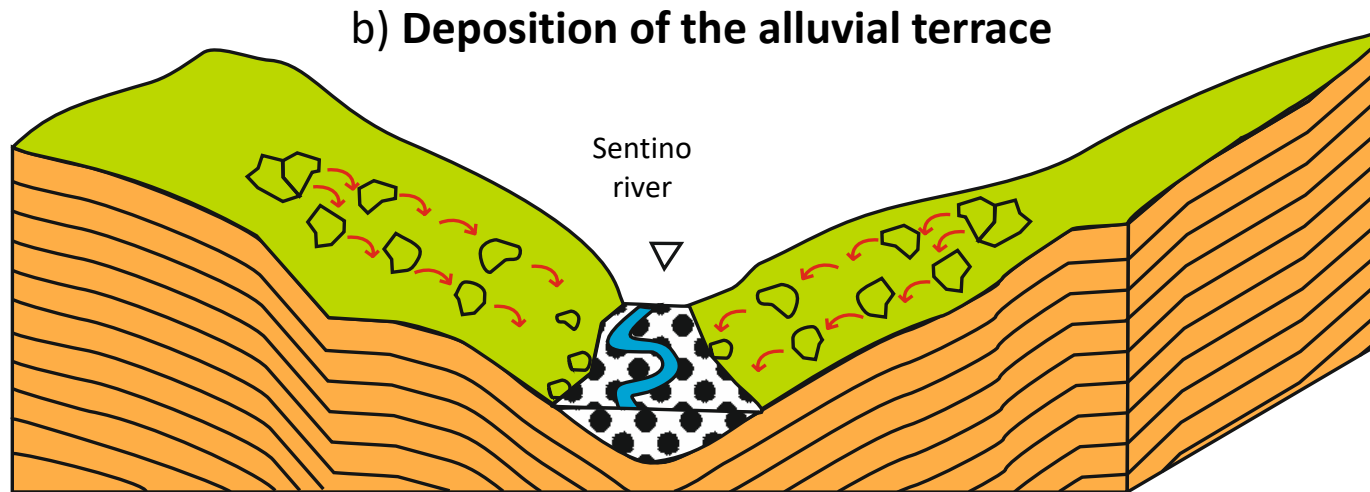
bedrock

From PhD research project - P. Stroppa “The geosites as tools for teaching earth sciences at school” (2015), University of Camerino



Alluvial terraces formation during glacial stages

- During glacial stage debris are transported by surface runoff water to form alluvial terraces (fig. b).



Debris



Alluvial terrace
(black and
white colour)



bedrock



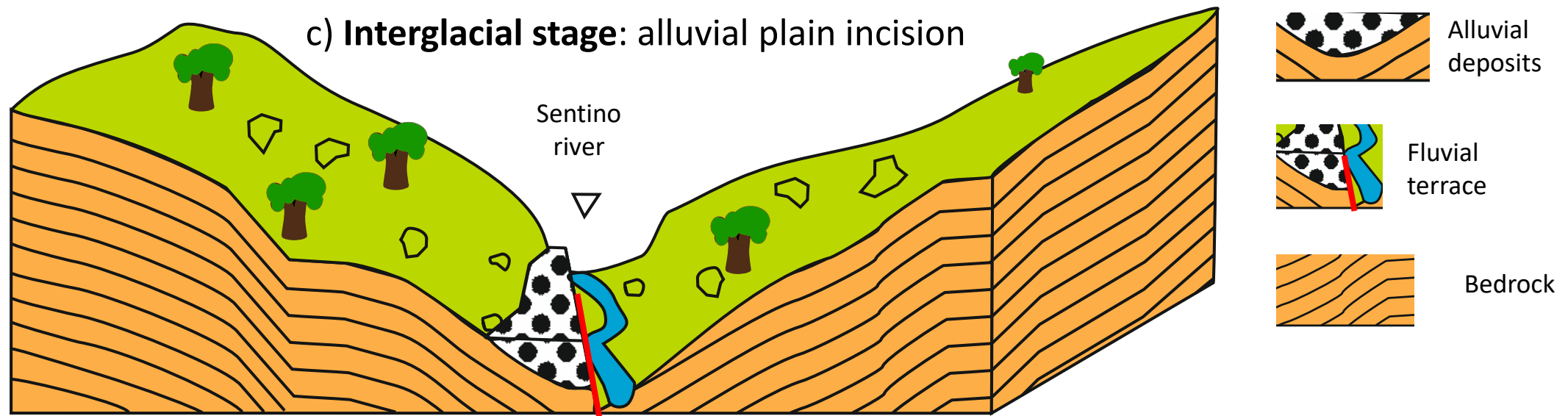
Above, alluvial deposit.

Porto Sant’Elpidio.



Alluvional terraces origin. Interglacial stage (milder climate)

- During the milder periods (interglacial) the glaciers melted thus increasing the flow of the waterways and the erosive power of the rivers (fig. c).





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To sum up

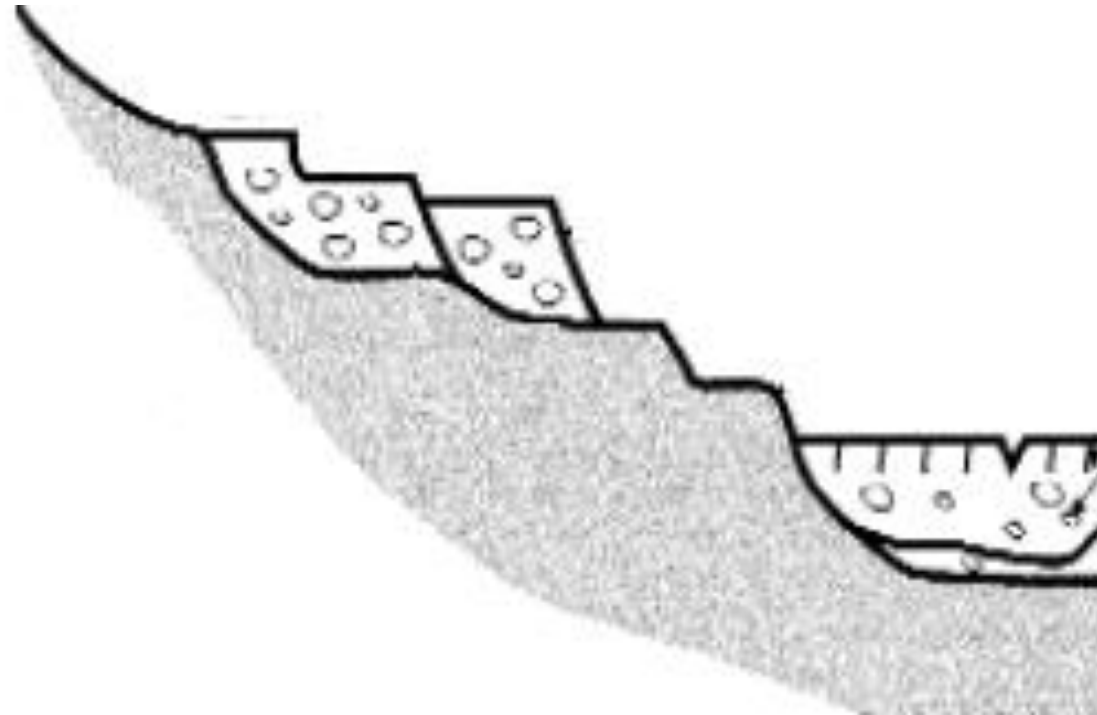
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To sum up, terraces are formed by phases of cyclic erosion and deposition (cut and fill) of alluvial sediments in a setting that generates a staircase

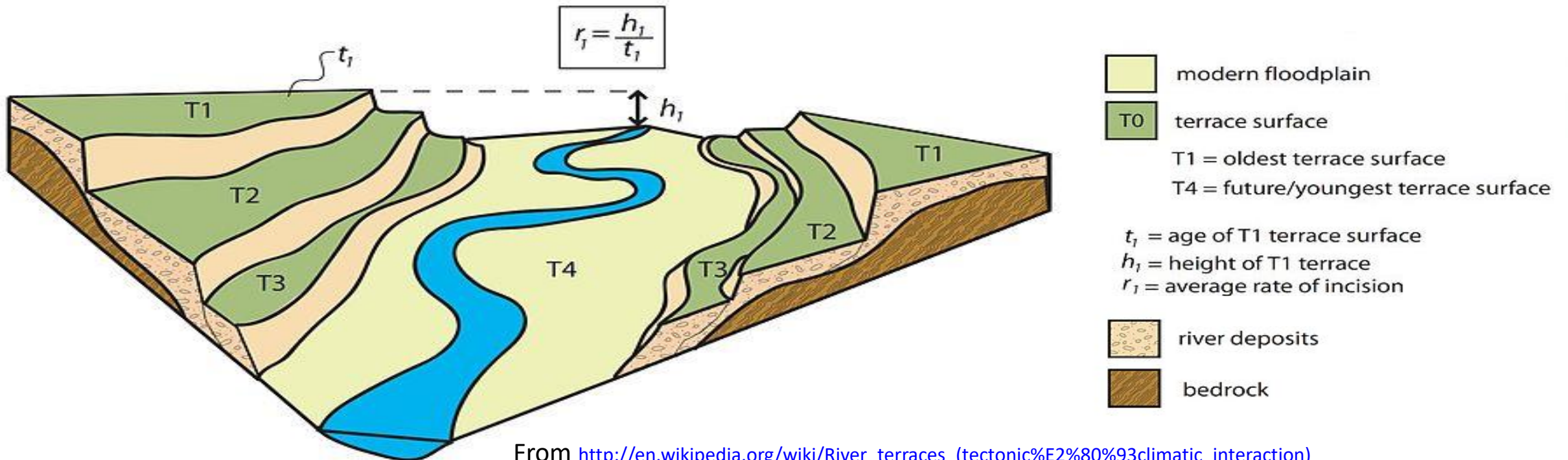


Above, several alluvial terraces. From: http://www.igmi.org/pubblicazioni/atlante_tipi_geografici/pdf/17.pdf



Alluvial terraces and the glaciations

- During the Quaternary Era there were at least four big glaciation stages and 4 interglacial stages (at the moment we are probably in an interglacial stage).



From [http://en.wikipedia.org/wiki/River terraces \(tectonic–climatic interaction\)](http://en.wikipedia.org/wiki/River_terraces_(tectonic%E2%80%93climatic_interaction))

Thanks for your attention

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Frasassi's Abbey



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