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rPlum fechado con plomo para el usuario común.

rPlum lead dating for the common user

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@article{Appleby1978, author={Appleby, P.G. and Oldfield, F.}, title="The calculation of lead-210 dates assuming a constant rate of supply of unsupported 210Pb to the sediment", journal={Catena}, year={1978}, volume={5}, number={1}, pages={1–8}, doi={10.1016/S0341-8162(78)80002-2}, document_type={Article}, source={Scopus}, }

@article{Aquino2018, doi = {10.1007/s13253-018-0328-7}, url = {https://doi.org/10.1007%2Fs13253-018-0328-7}, year = 2018, month = {jun}, publisher = {Springer Science and Business Media {LLC}}, volume = {23}, number = {3}, pages = {317–333}, author = {Marco A. Aquino-L{'{o}}pez and Maarten Blaauw and J. Andr{'{e}}s Christen and Nicole K. Sanderson}, title = {Bayesian Analysis of 210Pb Dating}, journal = {Journal of Agricultural, Biological and Environmental Statistics} }

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What is Plum?

- Plum is a Bayesian age-depth model for ^{210}Pb
- It is a tool which allow us to obtained integrated chronologies without the need of pre-modelling ^{210}Pb dates.
- It is just simple and cool.

What differenciates Plum from other 210Pb dating methods?

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CRS

logaritmic age-depth function.

This model assumes a constant rate of supply of 210Pb to the sediment in the period of interest.

$$t(x) = \frac{1}{\lambda} \log\left(\frac{A_0}{A_x}\right)$$

Appleby & Oldfield (1979) Robbins (1979)

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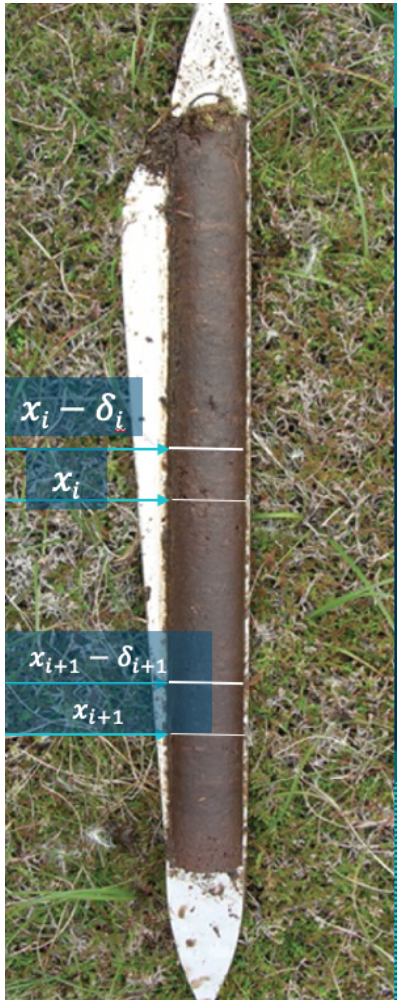
Plum flexible age-depth function

On the other hand, *Plum* works by implementing a statistical approach to creating the chronology. *Plum* defines the toral measured ^{210}Pb as

$$y_i \sim \mathcal{N}\left(\mu_i^s + \mu_i^U\right)$$



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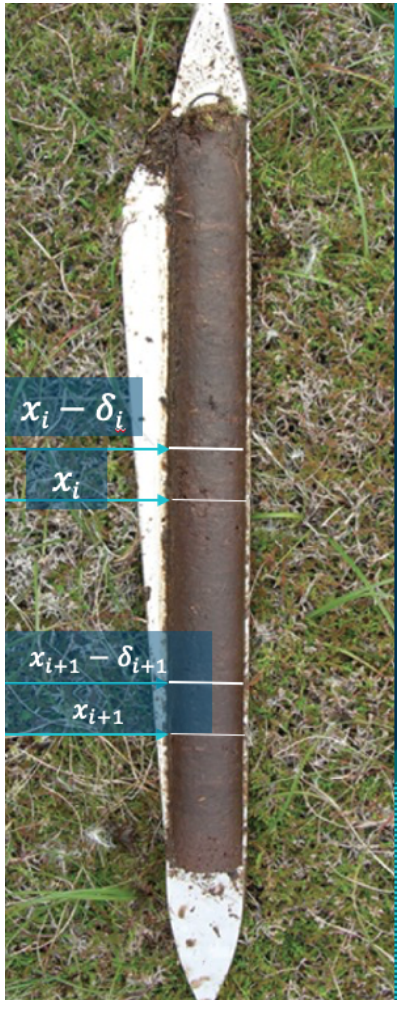
Plum flexible age-depth function

Where mu_i^s is the "true" levels of supported ^{210}Pb and μ_i^u the unsupported levels in sample y_i. By assuming a constant supply of ^{210}Pb (Φ) we get that,

$$\mu_i^u = \frac{\Phi}{\lambda}\left(e^{-\lambda t(x_i-\delta)} - e^{-\lambda t(x_i)}\right)$$



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Plum flexible age-depth function

Function $t(x)$ is define as the autoregressive gamma process presented by Blaauw & Christen (2011) also known as *Bacon*.

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Benefits of *Plum*

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