

User Interface
User provides sample-specific information
Mineral, nuclide, atmospheric depth
conversion mode, time range, tectonic plate



Read
Read in relevant text files
Excel file with dataset (sample name,
lat/lon, elevation, geometric shielding,
erosion, sample depth, nuclide concentration)



MCADAM
*Generate time-averaged paleointensities
in 250 ka bins*
MCADAM model, Geomagia database

PmagPy Paleolatitude
Calculate time-varying paleolatitude
User-specified plate, lat/lon, PmagPy Apparent
Polar Wander Path (APWP) package



Cutoff Rigidity (R_c)
Calculate cutoff rigidity
MCADAM paleointensity averages,
PmagPy paleolatitude



Atmospheric Depth
Convert elevation to atmospheric depth
If user specified ERA40: Use ERA40 mean
temperature and pressure to interpolate site-
specific pressure
Else: use ICAO standard atmosphere conversion

Neutron Spallation
Calculate neutron production
Time-averaged solar modulation
parameter (Lifton et al., 2008),
neutron flux and energy spectra (Sato et al., (2008)),
reaction cross sections (Reedy (2013)),
atmospheric depth, atomic number density,
cutoff rigidity



Proton Spallation
Calculate proton production
Time-averaged solar modulation
parameter (Lifton et al., 2008),
proton flux and energy spectra (Sato et al., (2008)),
reaction cross sections (Reedy (2013)),
atmospheric depth, atomic number density,
cutoff rigidity



Muons
Calculate muogenic production (for 21Ne only)
FILL IN

Thickness shielding factor
Calculate shielding due to sample depth
Spallation attenuation length, user-specified
sample depth below surface



Scaling Factor
*Calculate sample and site specific scaling
factor*
Production from neutrons and protons,
reference production rate (SLHL)



Exposure Age
Calculate exposure age
Scaling factor, reference production rate,
thickness shielding factor, geometric shielding
factor, erosion rate, spallation attenuation length,
For 21Ne only: muogenic attenuation length
and production rate