

[Reproduced unchanged, with permission - J.D. Morris, "The Young Earth", Master Books: Colorado Springs (USA), 1994 p:144]

## **Salt Adding Processes**

- **Rivers: Rock Weathering**
- **Rivers: Chloride Deposits**
- **Rivers: Sea Spray**
- **Ocean: Sediment Dissolution**
- **Ocean: Hydrothermal Vents**
- **Glaciers: Pulverized Sediment**
- **Glaciers: Melting Ice**
- **Atmosphere: Dust**
- **Volcanoes: Dust**
- **Volcanoes: Aerosols**
- **Continental Land: Coastal Erosion**
- **Continental Land: Ground Water**

## **Salt Removing Processes**

- **Sea Spray**
- **Ion Exchange**
- **Sea Sediment**
- **Halite Deposits**
- **Sea-Floor Basalt Weathering**
- **Albite Formation**
- **Zeolite Formation**

## Joly's Calculation

In 1901 geologist John Joly calculated the age of the earth by estimating how long it took for the ocean to become as salty as it was in his time. Using uniformitarian principles, he assumed that the seas were originally fresh water, and that the same amount of salt (sodium chloride) has been added to it each year since the world formed. He concluded that the earth was about **100 Million Years Old**.

The age was calculated like this:-

Present concentration of ocean salt = 32 gm/lt

Present total volume of the oceans =  $1.5 \times 10^{21}$  lt

$\therefore$  Present total amount of salt in the oceans =  $32 \times (1.5 \times 10^{21})$   
 $= 5 \times 10^{16}$  tonnes

Present rate of salt entering the oceans =  $5.4 \times 10^8$  tonnes/year

$\therefore$  The time for the salt to reach the present value =  $(5 \times 10^{16}) \div (5.4 \times 10^8)$   
 $= 1 \times 10^8$  years  
 $\cong 100$  million years

J. Joly, "An Estimate of the Geological Age of the Earth", *Smithsonian Institution Annual Report for the Year 1899*, 1901 p:247

## The Calculation Data

The result of all these modern investigations has produced this data measured in  $10^{10}$  kg/yr:-

Sodium Input Process	Modern	Minimum	Sodium Output Process	Modern	Maximum
Rivers: Silicate Weathering	6.2	6.2	Sea Spray	6.0	6.7
Rivers: Chloride Solution	7.5	7.5	Ion Exchange	3.5	5.2
Rivers: Sea Spray	5.5	5.0	Burial Pore Water	2.2	3.9
Ocean-Floor Sediments	11.5	6.21	Halite Deposits	<0.004	4.0
Pulverized Glacial Sediments	3.9	0.0	Alteration of Sea-Floor Basalt	0.44	0.62
Atmospheric & Volcanic Dust	0.14	0.14	Albite Formation	0.0	0.0
Coastal Erosion	0.077	0.074	Zeolite Formation	0.08	0.2
Glacier Ice	0.12	0.0			
Volcanic Aerosols	0.093	0.093			
Ground Water Seepage	9.6	9.3			
Sea-Floor Hydrothermal Vents	1.1	1.1			

S.A. Austin & D.R. Humphreys, "The Sea's Missing Salt: A Dilemma for Evolutionists",  
in *Proceedings of the Second International Conference on Creationism*, Vol. 2, 1991 p:19 & 21

## Austin & Humphrey's Calculation

Using the data for minimum additions and maximum removals, Austin and Humphreys also calculated a maximum age for the oceans of **62 MILLION YEARS**.

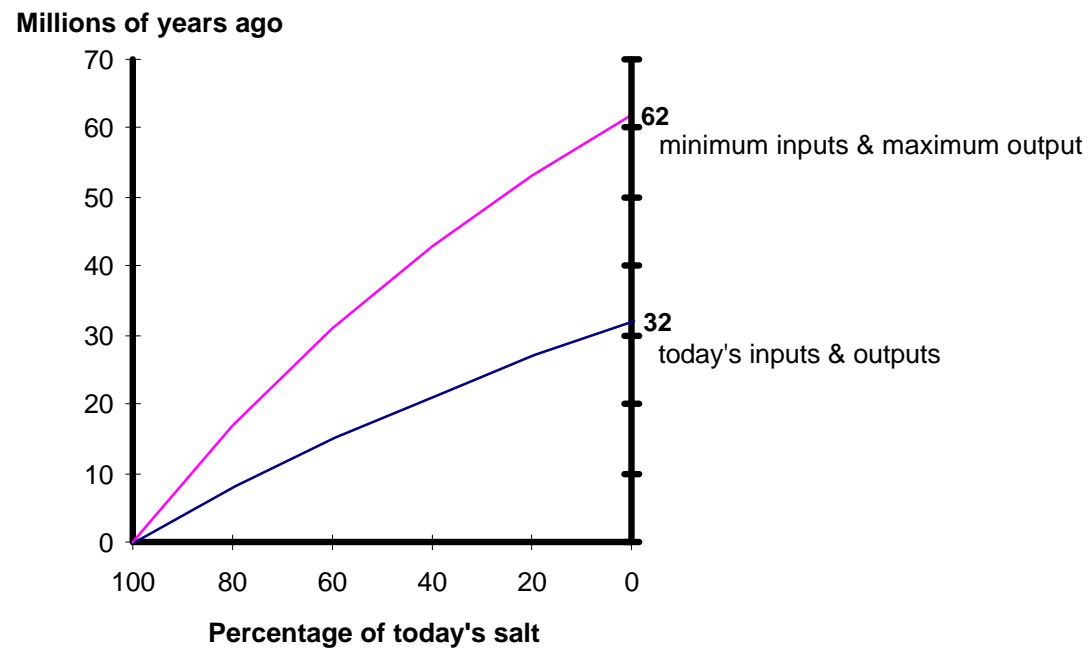
They did this using following formula for time (T):-

$$T = \frac{t}{x} \ln \left[ \frac{1 - \left( \frac{M_o x}{M_p} \right)}{1 - x} \right]$$

This calculation estimated the oldest that the oceans could be. As far as science knows, there are no other processes that remove large amounts of salt from seawater.

## Time to build up today's level of sea salt

(Austin & Humphrey's data)



(after Figure A - S.A. Austin & D.R. Humphreys, "The Sea's Missing Salt: A Dilemma for Evolutionists",  
Proceedings of the Second International Conference on Creationism, Vol. 2, 1991 p:33)