

# Appendix - A

Table III.2 Oxygen isotopic records of KV-1, Am and GC

| Year &<br>Month | Kavartti coral |                                 | Amini coral     |                                 | Giant Clam     |                                 |
|-----------------|----------------|---------------------------------|-----------------|---------------------------------|----------------|---------------------------------|
|                 | Dis. (mm)      | $\delta^{18}\text{O}(\text{‰})$ | Dis. (mm)       | $\delta^{18}\text{O}(\text{‰})$ | Dis. (mm)      | $\delta^{18}\text{O}(\text{‰})$ |
|                 |                |                                 |                 |                                 | clam collected |                                 |
|                 |                |                                 | coral collected |                                 | 0.0            | -0.29                           |
|                 |                |                                 |                 |                                 | 2.2            | -0.37                           |
|                 |                |                                 | 0.0             | -5.29                           | 3.7            | -0.20                           |
| Aug '88         |                |                                 | 3.6             | -5.03                           | 5.5            | -0.11                           |
|                 |                |                                 | 6.1             | -5.13                           |                |                                 |
|                 |                |                                 | 8.5             | -5.07                           | 7.4            | -0.21                           |
|                 |                |                                 | 10.9            | -5.34                           | 8.6            | -0.18                           |
|                 |                |                                 |                 |                                 | 10.1           | -0.43                           |
|                 |                |                                 |                 |                                 | 11.4           | -0.55                           |
| May '88         |                |                                 | 13.7            | -5.67                           | 12.9           | -1.25                           |
|                 |                |                                 |                 |                                 | 14.3           | -0.96                           |
|                 |                |                                 |                 |                                 | 15.6           | -1.04                           |
|                 |                |                                 |                 |                                 | 17.0           | -0.73                           |
|                 |                |                                 |                 |                                 | 18.9           | -0.84                           |
|                 |                |                                 |                 |                                 | 20.7           | -0.91                           |
|                 | 0.0            | -5.76                           |                 |                                 | 22.6           | -0.67                           |
|                 | 2.0            | -5.48                           |                 |                                 | 24.1           | -0.85                           |
|                 | 3.5            | -5.60                           | 16.6            | -5.38                           | 25.7           | -0.84                           |
|                 |                |                                 |                 |                                 | 27.7           | -0.81                           |
|                 | 5.0            | -5.58                           | 19.3            | -5.53                           | 29.7           | -0.68                           |
|                 | 6.0            | -5.47                           |                 |                                 | 31.4           | -0.67                           |
|                 | 7.5            | -5.18                           | 21.8            | -5.23                           | 33.1           | -0.67                           |
|                 | 8.9            | -5.31                           | 24.7            | -5.09                           | 34.8           | -0.58                           |
|                 |                |                                 |                 |                                 | 36.6           | -0.47                           |
|                 |                |                                 |                 |                                 | 38.1           | -0.62                           |
| Aug '87         | 11.2           | -5.14                           | 26.5            | -5.10                           | 40.0           | 0.43                            |
|                 | 12.1           | -5.15                           | 29.5            | -5.14                           |                |                                 |

Table III.2 contd.

| Year &<br>Month | Kavartti coral |                                 | Amini coral |                                 | Giant Clam |                                 |
|-----------------|----------------|---------------------------------|-------------|---------------------------------|------------|---------------------------------|
|                 | Dis. (mm)      | $\delta^{18}\text{O}(\text{‰})$ | Dis. (mm)   | $\delta^{18}\text{O}(\text{‰})$ | Dis. (mm)  | $\delta^{18}\text{O}(\text{‰})$ |
| May '87         | 13.8           | -5.15                           | 31.8        | -5.18                           | 42.8       | -0.87                           |
|                 | 15.0           | -5.33                           |             |                                 |            |                                 |
|                 | 17.2           | -5.36                           | 34.7        | -5.18                           |            |                                 |
|                 | 18.2           | -5.39                           |             |                                 |            |                                 |
|                 | 19.0           | -5.42                           | 37.3        | -5.35                           | 44.7       | -0.87                           |
|                 | 20.1           | -5.34                           |             |                                 | 46.4       | -0.76                           |
|                 | 21.0           | -5.38                           |             |                                 | 48.1       | -0.87                           |
|                 | 21.8           | -5.29                           | 40.4        | -5.12                           | 49.8       | -0.62                           |
|                 |                |                                 |             |                                 | 51.3       | -0.72                           |
|                 | 22.8           | -5.03                           |             |                                 | 53.2       | -0.69                           |
|                 | 23.5           | -5.17                           |             |                                 | 55.8       | -0.51                           |
|                 | 24.2           | -4.97                           |             |                                 |            |                                 |
|                 | 25.3           | -5.22                           | 43.1        | -5.20                           | 57.8       | -0.31                           |
|                 | 26.4           | -4.86                           |             |                                 | 59.7       | -0.37                           |
|                 |                |                                 |             |                                 | 62.3       | -0.63                           |
|                 | 27.5           | -5.29                           | 45.8        | -5.14                           | 64.3       | -0.26                           |
|                 | 28.3           | -5.11                           | 48.5        | -4.92                           | 66.3       | -0.34                           |
| Aug '86         |                |                                 |             |                                 | 68.2       | -0.50                           |
|                 | 29.2           | -5.25                           |             |                                 | 69.5       | -0.46                           |
|                 | 29.8           | -4.81                           | 51.2        | -4.63                           | 71.4       | -0.25                           |
|                 | 31.0           | -5.14                           |             |                                 |            |                                 |
|                 | 31.6           | -5.04                           |             |                                 |            |                                 |
|                 | 32.3           | -5.07                           | 53.6        | -4.93                           | 72.9       | -0.35                           |
|                 | 33.2           | -5.02                           |             |                                 | 74.3       | -0.43                           |
|                 | 34.2           | -5.20                           |             |                                 |            |                                 |
|                 | 35.1           | -5.11                           |             |                                 |            |                                 |
|                 | 35.8           | -5.23                           |             |                                 |            |                                 |

Table III.2 contd.

| Year &<br>Month | Kavartti coral |                                 | Amini coral |                                 | Giant Clam |                                 |
|-----------------|----------------|---------------------------------|-------------|---------------------------------|------------|---------------------------------|
|                 | Dis. (mm)      | $\delta^{18}\text{O}(\text{‰})$ | Dis. (mm)   | $\delta^{18}\text{O}(\text{‰})$ | Dis. (mm)  | $\delta^{18}\text{O}(\text{‰})$ |
| Aug '85         | 36.5           | -5.32                           | 56.5        | -4.81                           | 76.1       | -0.92                           |
|                 | 37.7           | -5.33                           |             |                                 |            |                                 |
|                 | 38.5           | -5.44                           |             |                                 |            |                                 |
|                 | 39.5           | -5.64                           | 59.1        | -5.52                           | 78.1       | -1.21                           |
|                 | 40.2           | -5.53                           |             |                                 |            |                                 |
|                 | 41.1           | -5.56                           | 62.1        | -5.24                           |            |                                 |
|                 | 42.2           | -5.59                           |             |                                 |            |                                 |
|                 | 43.2           | -5.53                           |             |                                 |            |                                 |
|                 | 44.0           | -5.41                           |             |                                 |            |                                 |
|                 | 44.9           | -5.49                           | 64.3        | -5.39                           |            |                                 |
|                 | 45.9           | -5.39                           |             |                                 |            |                                 |
|                 | 46.9           | -5.69                           | 67.5        | -4.81                           |            |                                 |
|                 | 48.0           | -5.58                           |             |                                 |            |                                 |
|                 | 48.8           | -4.93                           |             |                                 |            |                                 |
|                 | 49.7           | -4.87                           | 70.4        | -4.75                           | 79.9       | -0.53                           |
|                 | 50.7           | -5.01                           |             |                                 |            |                                 |
|                 | 51.6           | -4.94                           |             |                                 |            |                                 |
|                 | 52.3           | -4.90                           |             |                                 |            |                                 |
|                 | 53.2           | -4.90                           | 72.6        | -4.92                           |            |                                 |
|                 | 54.0           | -5.13                           |             |                                 |            |                                 |
|                 | 54.7           | -4.93                           |             |                                 |            |                                 |
|                 | 55.5           | -4.98                           | 74.9        | -5.00                           |            |                                 |
|                 | 56.2           | -4.98                           |             |                                 |            |                                 |
|                 | 57.0           | -5.04                           |             |                                 |            |                                 |
|                 | 58.0           | -5.08                           | 77.5        | -4.99                           |            |                                 |
|                 | 58.7           | -5.13                           |             |                                 |            |                                 |
|                 | 59.5           | -5.25                           |             |                                 |            |                                 |

Table III.2 contd.

| Year &<br>Month | Kavartti coral |                                 | Amini coral          |                                 | Giant Clam |                                 |
|-----------------|----------------|---------------------------------|----------------------|---------------------------------|------------|---------------------------------|
|                 | Dis. (mm)      | $\delta^{18}\text{O}(\text{‰})$ | Dis. (mm)            | $\delta^{18}\text{O}(\text{‰})$ | Dis. (mm)  | $\delta^{18}\text{O}(\text{‰})$ |
| May '85         | 60.2           | -5.37                           |                      |                                 |            |                                 |
|                 | 61.0           | -5.34                           | 81.0                 | -5.25                           |            |                                 |
|                 | 61.9           | -5.56                           |                      |                                 |            |                                 |
|                 | 62.5           | -5.34                           |                      |                                 |            |                                 |
|                 | 63.5           | -5.62                           | 83.8                 | -5.55                           | 82.0       | -1.19                           |
|                 | 64.4           | -5.57                           |                      |                                 | 84.0       | -1.08                           |
|                 | 65.1           | -5.42                           |                      |                                 |            |                                 |
|                 | 66.1           | -5.46                           |                      |                                 |            |                                 |
|                 | 66.8           | -5.46                           |                      |                                 | 86.2       | -1.07                           |
|                 | 67.7           | -5.46                           |                      |                                 | 87.9       | -0.98                           |
|                 | 68.4           | -5.20                           |                      |                                 |            |                                 |
|                 | 69.2           | -5.25                           |                      |                                 | 89.9       | -0.78                           |
|                 | 70.2           | -5.10                           |                      |                                 |            |                                 |
|                 | 71.0           | -4.94                           |                      |                                 | 92.1       | -0.72                           |
|                 | 72.0           | -5.01                           |                      |                                 |            |                                 |
|                 | 72.8           | -4.99                           |                      |                                 |            |                                 |
|                 | 73.9           | -5.03                           | 87.2                 | -5.21                           | 95.5       | -0.49                           |
|                 | 74.9           | -4.81                           |                      |                                 |            |                                 |
|                 | 75.5           | -4.82                           |                      |                                 |            |                                 |
|                 | 76.3           | -4.85                           |                      |                                 | 98.0       | -0.73                           |
|                 | 77.0           | -4.85                           |                      |                                 |            |                                 |
| Aug '84         | 77.6           | -4.69                           | 89.8                 | -4.60                           | 100.4      | -0.22                           |
|                 | 78.5           | -5.00                           |                      |                                 | 102.4      | -0.38                           |
|                 | 79.3           | -4.97                           |                      |                                 | 105.1      | -0.53                           |
|                 | 80.2           | -4.92                           | coral starts growing |                                 |            |                                 |
|                 | 81.0           | -4.90                           |                      |                                 |            |                                 |
|                 | 81.5           | -5.10                           |                      |                                 |            |                                 |
|                 | 82.3           | -4.96                           |                      |                                 | 108.5      | -0.70                           |

Table III.2 contd.

| Year &<br>Month | Kavartti coral |                                 | Amini coral |                                 | Giant Clam |                                 |
|-----------------|----------------|---------------------------------|-------------|---------------------------------|------------|---------------------------------|
|                 | Dis. (mm)      | $\delta^{18}\text{O}(\text{‰})$ | Dis. (mm)   | $\delta^{18}\text{O}(\text{‰})$ | Dis. (mm)  | $\delta^{18}\text{O}(\text{‰})$ |
| May '84         | 83.2           | -5.19                           |             |                                 | 108.5      | -0.70                           |
|                 | 83.9           | -5.12                           |             |                                 |            |                                 |
|                 | 84.5           | -5.39                           |             |                                 | 111.5      | -0.53                           |
|                 | 85.5           | -5.30                           |             |                                 |            |                                 |
|                 | 86.2           | -5.48                           |             |                                 | 115.3      | -0.66                           |
|                 | 87.0           | -5.33                           |             |                                 |            |                                 |
|                 | 87.7           | -5.52                           |             |                                 | 118.2      | -0.56                           |
|                 | 88.5           | -5.47                           |             |                                 | 121.0      | -0.94                           |
|                 | 89.3           | -5.44                           |             |                                 |            |                                 |
|                 | 90.0           | -5.49                           |             |                                 |            |                                 |
|                 | 91.0           | -5.32                           |             |                                 |            |                                 |
|                 | 91.7           | -5.41                           |             |                                 |            |                                 |
|                 | 92.5           | -5.33                           |             |                                 |            |                                 |
|                 | 93.3           | -5.37                           |             |                                 |            |                                 |
|                 | 94.1           | -5.18                           |             |                                 |            |                                 |
|                 | 94.8           | -5.46                           |             |                                 |            |                                 |
|                 | 95.7           | -5.28                           |             |                                 |            |                                 |
|                 | 96.2           | -5.21                           |             |                                 |            |                                 |
|                 | 97.4           | -4.80                           |             |                                 |            |                                 |
|                 | 98.1           | -4.75                           |             |                                 |            |                                 |
|                 | 98.9           | -4.84                           |             |                                 |            |                                 |
|                 | 99.7           | -5.00                           |             |                                 |            |                                 |
| Aug '83         | 100.4          | -4.61                           |             |                                 | 124.1      | -0.44                           |
|                 | 101.2          | -4.74                           |             |                                 |            |                                 |
|                 | 102.2          | -4.84                           |             |                                 |            |                                 |
|                 | 102.8          | -4.86                           |             |                                 |            |                                 |
|                 | 103.5          | -4.78                           |             |                                 |            |                                 |
|                 | 104.2          | -4.67                           |             |                                 |            |                                 |

Table III.2 contd.

| Year &<br>Month | Kavartti coral |                                 | Amini coral |                                 | Giant Clam          |                                 |
|-----------------|----------------|---------------------------------|-------------|---------------------------------|---------------------|---------------------------------|
|                 | Dis. (mm)      | $\delta^{18}\text{O}(\text{‰})$ | Dis. (mm)   | $\delta^{18}\text{O}(\text{‰})$ | Dis. (mm)           | $\delta^{18}\text{O}(\text{‰})$ |
| May '83         | 105.0          | -4.89                           |             |                                 | 126.6               | -0.99                           |
|                 | 105.7          | -4.84                           |             |                                 | clam starts growing |                                 |
|                 | 106.7          | -4.90                           |             |                                 |                     |                                 |
|                 | 107.4          | -4.92                           |             |                                 |                     |                                 |
|                 | 108.3          | -4.89                           |             |                                 |                     |                                 |
|                 | 109.2          | -5.00                           |             |                                 |                     |                                 |
|                 | 110.0          | -4.94                           |             |                                 |                     |                                 |
|                 | 110.7          | -4.99                           |             |                                 |                     |                                 |
|                 | 111.5          | -4.91                           |             |                                 |                     |                                 |
|                 | 112.2          | -5.14                           |             |                                 |                     |                                 |
|                 | 113.1          | -4.82                           |             |                                 |                     |                                 |
|                 | 114.0          | -5.03                           |             |                                 |                     |                                 |
|                 | 115.0          | -4.77                           |             |                                 |                     |                                 |
|                 | 116.0          | -4.97                           |             |                                 |                     |                                 |

Table III.3 Carbon isotopic data of coral KV-1

| Year & month | distance (mm) | $\delta^{13}\text{C}(\text{‰})$ | Year & month | distance (mm) | $\delta^{13}\text{C}(\text{‰})$ |
|--------------|---------------|---------------------------------|--------------|---------------|---------------------------------|
|              | 0.0           | -0.84                           |              | 36.5          | -1.33                           |
|              | 2.0           | -0.61                           |              | 37.7          | -1.31                           |
|              | 3.5           | -0.91                           |              | 38.5          | -1.12                           |
|              | 5.0           | -0.93                           | May '86      | 39.5          | -0.59                           |
|              | 6.0           | -0.70                           |              | 40.2          | -0.44                           |
|              | 7.5           | -0.91                           |              | 41.1          | -0.38                           |
|              | 8.9           | -1.19                           |              | 42.2          | -0.33                           |
| Aug '87      | 11.2          | -0.96                           |              | 43.2          | -0.22                           |
|              | 12.1          | -1.09                           |              | 44.0          | -0.15                           |
|              | 13.8          | -0.70                           |              | 44.9          | -0.10                           |
|              | 15.0          | -1.31                           |              | 45.9          | -0.43                           |
|              | 17.2          | -1.21                           |              | 46.9          | -0.66                           |
|              | 18.2          | -0.11                           |              | 48.0          | -0.78                           |
| May '87      | 19.0          | -0.22                           |              | 48.8          | -0.33                           |
|              | 20.1          | -0.27                           | Aug '85      | 49.7          | -0.30                           |
|              | 21.0          | -0.40                           |              | 50.7          | -0.16                           |
|              | 21.8          | -0.40                           |              | 51.6          | -0.24                           |
|              | 22.8          | -0.54                           |              | 52.3          | -0.41                           |
|              | 23.5          | -0.46                           |              | 53.2          | -0.73                           |
|              | 24.2          | -0.50                           |              | 54.0          | -0.90                           |
|              | 25.3          | -0.56                           |              | 54.7          | -1.27                           |
|              | 26.4          | -0.91                           |              | 55.5          | -1.22                           |
|              | 27.5          | -0.97                           |              | 56.2          | -1.27                           |
|              | 28.3          | -0.73                           |              | 57.0          | -1.06                           |
|              | 29.2          | -0.43                           |              | 58.0          | -1.15                           |
| Aug '86      | 29.8          | -0.80                           |              | 58.7          | -1.12                           |
|              | 31.0          | -1.21                           |              | 59.5          | -1.42                           |
|              | 31.6          | -0.83                           |              | 60.2          | -1.16                           |
|              | 32.3          | -0.83                           |              | 61.0          | -1.40                           |
|              | 33.2          | -1.01                           |              | 61.9          | -1.09                           |
|              | 34.2          | -1.33                           |              | 62.5          | -0.78                           |
|              | 35.1          | -1.14                           | May '85      | 63.5          | -0.57                           |
|              | 35.8          | -1.39                           |              | 64.4          | -0.48                           |

Table III.3 contd.

| Year & month | distance (mm) | $\delta^{13}\text{C}(\text{‰})$ | Year & month | distance (mm) | $\delta^{13}\text{C}(\text{‰})$ |
|--------------|---------------|---------------------------------|--------------|---------------|---------------------------------|
|              | 65.1          | -0.28                           |              | 91.0          | -0.53                           |
|              | 66.1          | -0.29                           |              | 91.7          | -0.58                           |
|              | 66.8          | -0.30                           |              | 92.5          | -0.63                           |
|              | 67.7          | -0.29                           |              | 93.3          | -0.59                           |
|              | 68.4          | -0.52                           |              | 94.1          | -0.72                           |
|              | 69.2          | -0.61                           |              | 94.8          | -0.80                           |
|              | 70.2          | -0.41                           |              | 95.7          | -0.61                           |
|              | 71.0          | -0.43                           |              | 96.2          | -0.57                           |
|              | 72.0          | -0.52                           |              | 97.4          | -0.27                           |
|              | 72.8          | -0.51                           |              | 98.1          | -0.52                           |
|              | 73.9          | -0.48                           |              | 98.9          | -0.48                           |
|              | 74.9          | -0.52                           |              | 99.7          | -0.63                           |
|              | 75.5          | -0.93                           | Aug '83      | 100.4         | -0.31                           |
|              | 76.3          | -0.88                           |              | 101.2         | -0.46                           |
|              | 77.0          | -0.65                           |              | 102.2         | -0.85                           |
| Aug '84      | 77.6          | -0.85                           |              | 102.8         | -1.06                           |
|              | 78.5          | -0.78                           |              | 103.5         | -1.20                           |
|              | 79.3          | -0.71                           |              | 104.2         | -1.02                           |
|              | 80.2          | -0.82                           |              | 105.0         | -1.25                           |
|              | 81.0          | -0.77                           |              | 105.7         | -1.23                           |
|              | 81.5          | -0.84                           |              | 106.7         | -1.03                           |
|              | 82.3          | -0.91                           |              | 107.4         | -1.23                           |
|              | 83.2          | -1.40                           |              | 108.3         | -0.99                           |
|              | 83.9          | -1.14                           |              | 109.2         | -0.97                           |
|              | 84.5          | -0.86                           |              | 110.0         | -0.69                           |
|              | 85.5          | -0.90                           |              | 110.7         | -0.83                           |
|              | 86.2          | -0.57                           |              | 111.5         | -0.65                           |
|              | 87.0          | -0.45                           | May '83      | 112.2         | -0.87                           |
| May '84      | 87.7          | -0.46                           |              | 113.1         | -0.46                           |
|              | 88.5          | -0.37                           |              | 114.0         | -0.61                           |
|              | 89.3          | -0.32                           |              | 115.0         | -0.31                           |
|              | 90.0          | -0.43                           |              | 116.0         | -0.51                           |

Table III.5 Oxygen and carbon isotope data of KV-2 coral

| Year    | $\delta^{18}\text{O}$<br>(‰) | $\delta^{13}\text{C}$<br>(‰) | Year    | $\delta^{18}\text{O}$<br>(‰) | $\delta^{13}\text{C}$<br>(‰) |
|---------|------------------------------|------------------------------|---------|------------------------------|------------------------------|
| 1966.08 | -4.72                        | 0.19                         | 1968.74 | -4.83                        | -0.34                        |
| 1966.20 | -4.82                        | 0.36                         | 1968.83 | -4.84                        | -0.42                        |
| 1966.40 | -5.15                        | 0.81                         | 1968.93 | -5.04                        | -0.72                        |
| 1966.45 | -5.05                        | 0.73                         | 1969.04 | -5.16                        | -0.40                        |
| 1966.50 | -5.04                        | 0.47                         | 1969.14 | -5.16                        | -0.27                        |
| 1966.55 | -5.01                        | 0.35                         | 1969.22 | -5.33                        | -0.30                        |
| 1966.60 | -4.85                        | 0.20                         | 1969.31 | -5.06                        | -0.61                        |
| 1966.65 | -4.70                        | 0.22                         | 1969.40 | -5.57                        | -0.89                        |
| 1966.77 | -4.98                        | -0.01                        | 1969.46 | -5.39                        | -1.06                        |
| 1966.87 | -4.99                        | 0.06                         | 1969.52 | -5.16                        | -0.89                        |
| 1966.97 | -4.95                        | -0.21                        | 1969.58 | -5.01                        | -1.46                        |
| 1967.08 | -5.18                        | -0.36                        | 1969.65 | -4.98                        | -1.40                        |
| 1967.18 | -5.24                        | 0.62                         | 1969.74 | -5.08                        | -1.68                        |
| 1967.29 | -5.25                        | 0.77                         | 1969.83 | -5.07                        | -1.94                        |
| 1967.40 | -5.27                        | 0.69                         | 1969.92 | -5.08                        | -1.82                        |
| 1967.43 | -4.92                        | 0.23                         | 1970.00 | -5.10                        | -1.93                        |
| 1967.47 | -4.94                        | -0.30                        | 1970.08 | -5.10                        | -1.74                        |
| 1967.50 | -5.18                        | -0.11                        | 1970.17 | -5.09                        | -0.91                        |
| 1967.54 | -5.04                        | 0.39                         | 1970.24 | -5.22                        | -0.78                        |
| 1967.58 | -5.24                        | 0.58                         | 1970.32 | -5.46                        | -0.95                        |
| 1967.61 | -4.95                        | -0.17                        | 1970.40 | -5.48                        | -1.08                        |
| 1967.65 | -4.75                        | 0.18                         | 1970.44 | -5.45                        | -0.16                        |
| 1967.90 | -4.90                        | 0.16                         | 1970.48 | -5.26                        | -1.36                        |
| 1968.13 | -4.83                        | 0.05                         | 1970.52 | -5.16                        | -1.40                        |
| 1968.25 | -5.11                        | 0.43                         | 1970.56 | -5.03                        | -1.50                        |
| 1968.40 | -5.26                        | 0.33                         | 1970.61 | -4.99                        | -1.42                        |
| 1968.46 | -5.12                        | -0.13                        | 1970.65 | -4.85                        | -1.47                        |
| 1968.53 | -4.94                        | -0.77                        | 1970.77 | -5.02                        | -1.74                        |
| 1968.58 | -4.91                        | -0.77                        | 1970.88 | -5.06                        | -1.78                        |
| 1968.65 | -4.75                        | -0.30                        | 1970.00 | -5.23                        | -1.39                        |

Table III.5 contd.

| Year    | $\delta^{18}\text{O}$<br>(‰) | $\delta^{13}\text{C}$<br>(‰) | Year    | $\delta^{18}\text{O}$<br>(‰) | $\delta^{13}\text{C}$<br>(‰) |
|---------|------------------------------|------------------------------|---------|------------------------------|------------------------------|
| 1970.08 | -5.10                        | -1.74                        | 1972.40 | -5.58                        | -0.84                        |
| 1970.17 | -5.09                        | -0.91                        | 1972.48 | -5.05                        | -0.99                        |
| 1970.24 | -5.22                        | -0.78                        | 1972.56 | -4.91                        | -0.62                        |
| 1970.32 | -5.46                        | -0.95                        | 1972.65 | -4.98                        | -0.79                        |
| 1970.40 | -5.48                        | -1.08                        | 1972.77 | -5.12                        | -1.21                        |
| 1970.44 | -5.45                        | -1.06                        | 1972.88 | -5.07                        | -1.60                        |
| 1970.48 | -5.26                        | -1.36                        | 1973.00 | -5.06                        | -1.37                        |
| 1970.52 | -5.16                        | -1.40                        | 1973.12 | -5.04                        | -0.98                        |
| 1970.56 | -5.03                        | -1.50                        | 1973.22 | -5.08                        | -0.81                        |
| 1970.61 | -4.99                        | -1.42                        | 1973.31 | -5.22                        | -0.58                        |
| 1970.65 | -4.85                        | -1.47                        | 1973.40 | -5.41                        | -0.47                        |
| 1970.77 | -5.02                        | -1.74                        | 1973.44 | -5.36                        | -0.62                        |
| 1970.88 | -5.06                        | -1.78                        | 1973.48 | -5.30                        | -0.86                        |
| 1971.00 | -5.23                        | -1.39                        | 1973.52 | -5.23                        | -1.03                        |
| 1971.12 | -5.40                        | -1.17                        | 1973.56 | -5.17                        | -1.03                        |
| 1971.22 | -5.14                        | -0.92                        | 1973.61 | -4.99                        | -1.13                        |
| 1971.31 | -5.20                        | -0.76                        | 1973.65 | -4.96                        | -0.85                        |
| 1971.40 | -5.50                        | -0.78                        | 1973.77 | -5.05                        | -1.15                        |
| 1971.44 | -5.38                        | -0.82                        | 1973.87 | -5.22                        | -1.24                        |
| 1971.48 | -5.21                        | -1.04                        | 1973.97 | -5.29                        | -1.25                        |
| 1971.52 | -4.06                        | -0.95                        | 1974.08 | -5.72                        | -1.22                        |
| 1971.56 | -4.98                        | -0.90                        | 1974.18 | -5.68                        | -1.10                        |
| 1971.61 | -4.80                        | -0.91                        | 1974.29 | -5.76                        | -1.01                        |
| 1971.65 | -4.79                        | -1.02                        | 1974.40 | -5.60                        | -0.75                        |
| 1971.77 | -4.99                        | -1.25                        | 1974.44 | -5.25                        | -1.05                        |
| 1971.87 | -5.07                        | -1.38                        | 1974.48 | -5.21                        | -1.60                        |
| 1971.97 | -5.16                        | -1.55                        | 1974.52 | -5.09                        | -1.40                        |
| 1972.08 | -5.32                        | -1.55                        | 1974.56 | -5.04                        | -1.20                        |
| 1972.18 | -5.49                        | -0.84                        | 1974.61 | -4.97                        | -1.05                        |
| 1972.29 | -5.49                        | -0.69                        | 1974.65 | -4.84                        | -0.78                        |

Table III.5 contd.

| Year    | $\delta^{18}\text{O}$<br>(‰) | $\delta^{13}\text{C}$<br>(‰) | Year    | $\delta^{18}\text{O}$<br>(‰) | $\delta^{13}\text{C}$<br>(‰) |
|---------|------------------------------|------------------------------|---------|------------------------------|------------------------------|
| 1974.80 | -5.12                        | -1.28                        | 1978.28 | -5.39                        | -1.13                        |
| 1975.00 | -5.40                        | -0.89                        | 1978.40 | -5.46                        | -1.55                        |
| 1975.20 | -5.34                        | -0.91                        | 1978.53 | -5.06                        | -2.11                        |
| 1975.40 | -5.41                        | -0.55                        | 1978.65 | -4.86                        | -1.79                        |
| 1975.45 | -5.38                        | -0.42                        | 1978.78 | -5.24                        | -2.13                        |
| 1975.50 | -5.20                        | -1.20                        | 1978.90 | -5.07                        | -1.81                        |
| 1975.55 | -5.12                        | -1.74                        | 1979.03 | -5.06                        | -1.84                        |
| 1975.60 | -4.94                        | -1.51                        | 1979.15 | -5.23                        | -1.69                        |
| 1975.65 | -4.86                        | -1.35                        | 1979.28 | -5.27                        | -1.35                        |
| 1975.80 | -4.95                        | -1.40                        | 1979.40 | -5.30                        | -1.23                        |
| 1975.94 | -5.06                        | -1.69                        | 1979.48 | -5.36                        | -1.48                        |
| 1976.10 | -5.05                        | -1.67                        | 1979.56 | -5.03                        | -1.56                        |
| 1976.28 | -5.21                        | -0.96                        | 1979.65 | -4.88                        | -1.80                        |
| 1976.40 | -5.40                        | -0.77                        | 1979.78 | -5.02                        | -1.94                        |
| 1976.47 | -5.42                        | -0.62                        | 1979.90 | -5.05                        | -2.30                        |
| 1976.54 | -5.41                        | -0.53                        | 1980.03 | -5.21                        | -2.08                        |
| 1976.60 | -5.43                        | -1.02                        | 1980.15 | -5.27                        | -1.52                        |
| 1976.65 | -5.04                        | -1.16                        | 1980.28 | -5.38                        | -1.52                        |
| 1976.80 | -5.08                        | -1.18                        | 1980.40 | -5.39                        | -1.42                        |
| 1976.97 | -5.22                        | -1.49                        | 1980.44 | -5.18                        | -1.52                        |
| 1977.17 | -5.25                        | -1.27                        | 1980.49 | -5.10                        | -1.66                        |
| 1977.28 | -5.36                        | -0.80                        | 1980.53 | -5.17                        | -2.19                        |
| 1977.40 | -5.59                        | -0.71                        | 1980.57 | -5.18                        | -2.39                        |
| 1977.46 | -5.43                        | -1.02                        | 1980.61 | -5.11                        | -2.15                        |
| 1977.52 | -5.27                        | -1.72                        | 1980.65 | -4.91                        | -1.36                        |
| 1977.58 | -5.14                        | -1.62                        | 1980.08 | -5.23                        | -1.09                        |
| 1977.65 | -4.78                        | -1.16                        | 1981.40 | -5.30                        | -1.46                        |
| 1977.80 | -4.84                        | -1.73                        | 1981.48 | -5.28                        | -1.88                        |
| 1977.97 | -4.78                        | -1.51                        | 1981.57 | -5.03                        | -1.36                        |
| 1978.15 | -5.26                        | -1.13                        | 1981.65 | -4.89                        | -1.80                        |

Table III.5 contd.

| Year    | $\delta^{18}\text{O}$<br>(‰) | $\delta^{13}\text{C}$<br>(‰) | Year    | $\delta^{18}\text{O}$<br>(‰) | $\delta^{13}\text{C}$<br>(‰) |
|---------|------------------------------|------------------------------|---------|------------------------------|------------------------------|
| 1981.65 | -4.89                        | -1.80                        | 1984.48 | -5.40                        | -2.28                        |
| 1981.78 | -4.91                        | -2.39                        | 1984.51 | -5.36                        | -2.16                        |
| 1981.90 | -4.96                        | -2.28                        | 1984.54 | -5.26                        | -2.19                        |
| 1982.03 | -5.17                        | -2.01                        | 1984.57 | -5.22                        | -2.04                        |
| 1982.15 | -5.22                        | -1.29                        | 1984.60 | -5.16                        | -1.87                        |
| 1982.28 | -5.22                        | -0.68                        | 1984.63 | -5.15                        | -1.93                        |
| 1982.40 | -5.40                        | -0.85                        | 1984.65 | -4.83                        | -2.12                        |
| 1982.48 | -5.25                        | -1.44                        | 1984.73 | -5.13                        | -2.72                        |
| 1982.57 | -5.08                        | -1.88                        | 1984.81 | -5.05                        | -2.66                        |
| 1982.65 | -4.99                        | -2.20                        | 1984.89 | -4.94                        | -2.44                        |
| 1982.78 | -5.00                        | -2.12                        | 1984.97 | -4.91                        | -2.26                        |
| 1982.90 | -5.05                        | -2.46                        | 1985.06 | -4.97                        | -1.89                        |
| 1983.03 | -4.97                        | -2.12                        | 1985.15 | -5.19                        | -1.83                        |
| 1983.15 | -5.02                        | -1.42                        | 1985.23 | -5.16                        | -1.69                        |
| 1983.28 | -5.16                        | -1.28                        | 1985.31 | -5.30                        | -1.79                        |
| 1983.40 | -5.18                        | -0.97                        | 1985.40 | -5.52                        | -1.72                        |
| 1983.48 | -5.01                        | -1.03                        | 1985.43 | -5.49                        | -1.25                        |
| 1983.57 | -5.09                        | -1.72                        | 1985.46 | -5.44                        | -1.31                        |
| 1983.65 | -4.95                        | -1.74                        | 1985.49 | -5.32                        | -1.85                        |
| 1983.74 | -5.06                        | -2.06                        | 1985.52 | -5.35                        | -1.78                        |
| 1983.83 | -5.17                        | -2.46                        | 1985.55 | -5.12                        | -2.08                        |
| 1983.93 | -5.39                        | -2.41                        | 1985.58 | -5.05                        | -2.24                        |
| 1984.04 | -5.22                        | -2.28                        | 1985.61 | -5.02                        | -2.26                        |
| 1984.14 | -5.43                        | -2.31                        | 1985.65 | -4.93                        | -2.23                        |
| 1984.22 | -5.44                        | -2.24                        | 1985.77 | -5.11                        | -2.24                        |
| 1984.31 | -5.47                        | -2.07                        | 1985.87 | -5.19                        | -2.29                        |
| 1984.34 | -5.79                        | -2.03                        | 1985.97 | -5.31                        | -2.31                        |
| 1984.40 | -5.78                        | -1.84                        | 1986.08 | -5.58                        | -1.61                        |
| 1984.42 | -5.65                        | -1.88                        | 1986.18 | -5.54                        | -1.63                        |
| 1984.45 | -5.53                        | -2.02                        | 1986.29 | -5.55                        | -1.62                        |

Table III.5 contd.

| Year    | $\delta^{18}\text{O}$<br>(‰) | $\delta^{13}\text{C}$<br>(‰) | Year    | $\delta^{18}\text{O}$<br>(‰) | $\delta^{13}\text{C}$<br>(‰) |
|---------|------------------------------|------------------------------|---------|------------------------------|------------------------------|
| 1986.40 | -5.61                        | -1.39                        | 1989.58 | -5.14                        | -1.94                        |
| 1986.46 | -5.57                        | -1.48                        | 1989.65 | -4.91                        | -1.85                        |
| 1986.53 | -5.46                        | -1.77                        | 1989.78 | -4.95                        | -2.55                        |
| 1986.58 | -4.96                        | -1.90                        | 1989.90 | -5.14                        | -2.90                        |
| 1986.65 | -4.96                        | -1.61                        | 1990.04 | -5.15                        | -2.63                        |
| 1986.74 | -5.11                        | -1.81                        | 1990.16 | -5.20                        | -2.61                        |
| 1986.83 | -4.95                        | -2.10                        | 1990.28 | -5.37                        | -2.36                        |
| 1986.92 | -5.10                        | -2.14                        | 1990.40 | -5.42                        | -2.41                        |
| 1987.00 | -5.04                        | -2.22                        | 1990.44 | -5.26                        | -2.32                        |
| 1987.10 | -5.09                        | -1.88                        | 1990.48 | -5.35                        | -2.15                        |
| 1987.20 | -4.99                        | -1.58                        | 1990.52 | -4.95                        | -2.58                        |
| 1987.30 | -4.89                        | -1.53                        | 1990.56 | -5.12                        | -2.41                        |
| 1987.40 | -5.27                        | -1.25                        | 1990.61 | -4.88                        | -2.67                        |
| 1987.53 | -5.08                        | -1.60                        | 1990.65 | -4.91                        | -2.80                        |
| 1987.65 | -4.95                        | -1.66                        | 1990.74 | -4.99                        | -2.75                        |
| 1987.90 | -5.11                        | -1.04                        | 1990.83 | -5.22                        | -3.09                        |
| 1988.15 | -5.25                        | -0.72                        | 1990.92 | -5.31                        | -3.23                        |
| 1988.40 | -5.37                        | -1.26                        | 1991.00 | -5.20                        | -2.94                        |
| 1988.49 | -5.15                        | -1.34                        | 1991.10 | -5.04                        | -2.72                        |
| 1988.57 | -5.12                        | -1.53                        | 1991.20 | -5.10                        | -2.29                        |
| 1988.65 | -4.96                        | -1.64                        | 1991.30 | -5.34                        | -2.05                        |
| 1988.80 | -5.15                        | -1.70                        | 1991.40 | -5.44                        | -1.91                        |
| 1988.95 | -5.12                        | -2.00                        | 1991.43 | -5.31                        | -1.76                        |
| 1989.10 | -5.17                        | -1.83                        | 1991.47 | -5.43                        | -1.54                        |
| 1989.25 | -5.29                        | -1.64                        | 1991.50 | -5.34                        | -1.72                        |
| 1989.40 | -5.40                        | -1.66                        | 1991.54 | -5.15                        | -2.12                        |
| 1989.46 | -5.30                        | -1.72                        | 1991.58 | -5.05                        | -1.80                        |
| 1989.53 | -5.27                        | -1.87                        | 1991.61 | -5.01                        | -1.85                        |

Table III.7  $\delta^{18}\text{O}$  and  $\delta^{13}\text{C}$  records of Gk coral

| Year | Distance<br>(mm) | $\delta^{18}\text{O}$<br>(‰) | $\delta^{13}\text{C}$<br>(‰) | Year | Distance<br>(mm) | $\delta^{18}\text{O}$<br>(‰) | $\delta^{13}\text{C}$<br>(‰) |
|------|------------------|------------------------------|------------------------------|------|------------------|------------------------------|------------------------------|
| 1948 | 0.00             | -4.08                        | -0.54                        | 1956 | 49.90            | -4.22                        | -0.81                        |
|      | 1.70             | -4.15                        | -1.12                        |      | 50.70            | -4.03                        | -0.04                        |
|      | 3.30             | -3.78                        | -0.36                        |      | 51.80            | -3.99                        | 0.02                         |
|      | 4.40             | -3.86                        | -0.44                        |      | 52.50            | -4.07                        | -0.57                        |
| 1949 | 5.40             | -3.73                        | -0.71                        | 1957 | 53.00            | -4.19                        | -0.56                        |
|      | 6.30             | -4.27                        | -1.82                        |      | 54.00            | -4.07                        | -0.58                        |
|      | 7.50             | -4.37                        | -2.14                        |      | 55.30            | -3.75                        | -0.59                        |
|      | 8.40             | -4.36                        | -1.54                        |      | 57.20            | -4.06                        | 0.62                         |
| 1950 | 9.50             | -4.42                        | -1.14                        | 1958 | 58.80            | -4.16                        | 0.35                         |
|      | 10.70            | -4.25                        | -0.72                        |      | 61.00            | -3.91                        | 0.65                         |
|      | 11.80            | -3.82                        | -0.50                        |      | 62.50            | -4.10                        | -0.05                        |
|      | 12.70            | -3.84                        | -0.30                        |      | 63.80            | -4.19                        | -0.42                        |
| 1951 | 13.70            | -3.69                        | -0.35                        | 1959 | 65.10            | -4.29                        | -0.57                        |
|      | 15.40            | -3.99                        | -0.22                        |      | 66.60            | -4.11                        | -0.26                        |
|      | 17.00            | -4.04                        | -0.23                        |      | 68.50            | -4.10                        | 0.27                         |
|      | 18.80            | -4.28                        | -0.55                        |      | 70.50            | -4.53                        | -0.58                        |
| 1952 | 20.60            | -3.65                        | 1.02                         | 1960 | 72.00            | -4.25                        | 0.00                         |
|      | 22.60            | -3.70                        | -0.09                        |      | 73.80            | -4.54                        | -1.34                        |
|      | 24.50            | -3.80                        | -0.43                        |      | 75.60            | -4.42                        | -1.01                        |
|      | 26.20            | -3.97                        | -0.29                        |      | 77.10            | -4.27                        | 0.04                         |
| 1953 | 27.80            | -3.88                        | -0.20                        | 1961 | 78.80            | -4.29                        | -0.77                        |
|      | 29.20            | -4.36                        | -1.72                        |      | 80.30            | -4.22                        | -0.46                        |
|      | 30.50            | -4.40                        | -0.94                        |      | 82.30            | -3.98                        | -0.31                        |
|      | 32.00            | -4.10                        | -0.03                        |      | 83.90            | -4.40                        | -0.26                        |
| 1954 | 34.00            | -4.16                        | -0.99                        | 1962 | 85.60            | -4.23                        | -0.45                        |
|      | 35.00            | -4.57                        | -1.41                        |      | 87.50            | -3.95                        | 0.13                         |
|      | 36.30            | -4.48                        | -1.41                        |      | 89.00            | -3.73                        | 0.12                         |
|      | 38.60            | -4.25                        | -0.54                        |      | 90.80            | -4.08                        | -0.66                        |
| 1955 | 40.20            | -4.23                        | -0.26                        | 1963 | 92.40            | -4.16                        | -0.39                        |
|      | 41.60            | -4.68                        | -2.23                        |      | 94.00            | -3.85                        | 0.54                         |
|      | 42.70            | -4.65                        | -2.52                        |      | 95.50            | -3.90                        | -0.09                        |
|      | 44.00            | -4.20                        | -0.41                        |      | 96.90            | -4.00                        | -0.81                        |
| 1956 | 45.70            | -3.94                        | 0.48                         | 1964 | 98.60            | -3.98                        | -0.27                        |
|      | 49.60            | -4.23                        | -0.34                        |      | 100.40           | -3.70                        | 0.19                         |
|      | 48.20            | -4.24                        | -0.37                        |      | 102.10           | -4.17                        | -0.98                        |
|      |                  |                              |                              |      |                  |                              |                              |

Table III.7 contd.

| Year | Distance<br>(mm) | $\delta^{18}\text{O}$<br>(‰) | $\delta^{13}\text{C}$<br>(‰) | Year | Distance<br>(mm) | $\delta^{18}\text{O}$<br>(‰) | $\delta^{13}\text{C}$<br>(‰) |
|------|------------------|------------------------------|------------------------------|------|------------------|------------------------------|------------------------------|
| 1966 | 103.4            | -3.92                        | -0.42                        | 1978 | 160.0            | -4.15                        | 0.20                         |
|      | 105.2            | -4.09                        | -0.03                        |      | 161.5            | -4.57                        | -0.01                        |
|      | 106.7            | -4.28                        | -0.15                        |      | 162.9            | -4.62                        | -1.10                        |
|      | 108.2            | -4.20                        | -0.56                        |      | 164.3            | -4.34                        | 0.26                         |
| 1967 | 110.0            | -3.98                        | 0.53                         | 1979 | 165.7            | -4.28                        | 0.52                         |
|      | 111.9            | -4.34                        | -0.03                        |      | 166.9            | -4.94                        | -0.72                        |
| 1968 | 113.5            | -3.82                        | 0.88                         |      | 168.4            | -4.98                        | -0.73                        |
|      | 115.0            | -3.94                        | 0.94                         | 1980 | 170.0            | -4.41                        | -0.28                        |
| 1969 | 116.8            | -3.99                        | 0.40                         |      | 171.5            | -4.39                        | -0.24                        |
|      | 118.2            | -4.10                        | -0.06                        | 1981 | 172.8            | -4.08                        | 0.07                         |
|      | 120.2            | -4.01                        | -0.34                        |      | 174.4            | -4.47                        | -0.76                        |
| 1970 | 121.9            | -3.67                        | 0.19                         |      | 175.6            | -4.26                        | -0.37                        |
|      | 123.8            | -4.22                        | -0.46                        | 1982 | 177.2            | -3.96                        | -0.06                        |
|      | 125.5            | -4.00                        | -0.5                         |      | 178.3            | -4.14                        | -0.26                        |
| 1971 | 128.2            | -3.51                        | -0.41                        | 1983 | 179.4            | -3.96                        | 0.57                         |
|      | 131.0            | -3.74                        | -0.13                        |      | 181.2            | -4.03                        | -0.06                        |
| 1972 | 132.8            | -3.65                        | 0.05                         |      | 182.9            | -4.13                        | -0.29                        |
|      | 135.0            | -3.84                        | 0.22                         | 1984 | 184.1            | -3.69                        | 0.65                         |
| 1973 | 137.1            | -3.44                        | 0.36                         |      | 185.6            | -3.76                        | 0.09                         |
|      | 139.2            | -3.84                        | -0.02                        |      | 187.3            | -3.88                        | 0.84                         |
| 1974 | 140.8            | -3.70                        | 0.34                         | 1985 | 188.5            | -3.77                        | 0.75                         |
|      | 142.7            | -4.02                        | -0.30                        |      | 189.8            | -3.94                        | 0.61                         |
| 1975 | 144.4            | -3.78                        | 0.65                         | 1986 | 191.0            | -3.63                        | 1.16                         |
|      | 145.8            | -3.85                        | 1.05                         |      | 192.8            | -3.93                        | 0.76                         |
|      | 147.4            | -4.24                        | -0.14                        |      | 193.9            | -3.93                        | 0.18                         |
|      | 149.0            | -4.49                        | -0.10                        | 1987 | 195.2            | -3.71                        | 0.80                         |
| 1976 | 150.6            | -4.35                        | 0.32                         |      | 196.4            | -3.88                        | 0.88                         |
|      | 152.0            | -4.43                        | -0.21                        |      | 198.6            | -4.00                        | -0.02                        |
|      | 153.1            | -4.45                        | -0.48                        | 1988 | 199.8            | -3.74                        | 0.77                         |
| 1977 | 154.4            | -4.30                        | 0.21                         |      | 201.7            | -3.85                        | 0.49                         |
|      | 156.0            | -4.41                        | 0.06                         |      | 203.9            | -4.21                        | 0.00                         |
|      | 157.2            | -4.54                        | -0.47                        | 1989 | 205.9            | -3.90                        | 0.96                         |
|      | 158.8            | -4.56                        | -0.22                        |      | 208.0            | -4.09                        | 1.57                         |

Table III.8a Oxygen and carbon isotopic records of the SR coral in Track-1

| Year | Distance(mm) | $\delta^{18}\text{O}(\text{‰})$ | $\delta^{13}\text{C}(\text{‰})$ | density(g cm <sup>-3</sup> ) |
|------|--------------|---------------------------------|---------------------------------|------------------------------|
| 1968 | 0.0          | -5.29                           | -1.05                           | 1.56                         |
|      | 4.1          | -4.57                           | -0.58                           | 1.63                         |
|      | 5.3          | -5.01                           | -0.56                           | 1.59                         |
| 1969 | 6.9          | -5.49                           | -0.93                           | 1.56                         |
|      | 11.3         | -4.92                           | -0.86                           | 1.66                         |
|      | 13.1         | -4.57                           | 0.35                            | 1.68                         |
| 1970 | 16.4         | -5.05                           | -0.71                           | 1.52                         |
|      | 18.3         | -4.84                           | -0.49                           | 1.63                         |
|      | 21.3         | -4.26                           | -0.59                           | 1.62                         |
| 1971 | 22.5         | -5.29                           | -0.28                           | 1.59                         |
|      | 25.3         | -5.04                           | -1.11                           | 1.50                         |
|      | 27.2         | -4.88                           | -0.72                           | 1.54                         |
|      | 29.2         | -5.10                           | -0.37                           | 1.59                         |
| 1972 | 31.2         | -5.66                           | -0.28                           | 1.53                         |
|      | 34.2         | -5.14                           | -0.45                           | 1.39                         |
|      | 36.0         | -4.93                           | -0.62                           | 1.47                         |
|      | 38.6         | -4.93                           | -0.35                           | 1.38                         |
| 1973 | 42.8         | -5.26                           | -0.64                           | 1.36                         |
|      | 44.3         | -5.55                           | -0.46                           | 1.47                         |
|      | 46.5         | -4.85                           | -0.77                           | 1.59                         |
| 1974 | 50.0         | -4.90                           | -0.51                           | 1.60                         |
|      | 56.3         | -5.47                           | -1.10                           | 1.48                         |
|      | 59.4         | -4.89                           | -1.36                           | 1.53                         |
|      | 62.1         | -4.73                           | -0.85                           | 1.59                         |
| 1975 | 67.2         | -5.25                           | -0.75                           | 1.53                         |
|      | 70.8         | -5.45                           | -0.99                           | 1.44                         |
|      | 74.3         | -4.56                           | -0.72                           | 1.61                         |
| 1976 | 75.6         | -5.44                           | -0.51                           | 1.57                         |

Table III.8a contd.

| Year | Distance (mm) | $\delta^{18}\text{O}(\text{‰})$ | $\delta^{13}\text{C}(\text{‰})$ | Density(g cm <sup>-3</sup> ) |
|------|---------------|---------------------------------|---------------------------------|------------------------------|
| 1977 | 78.8          | -5.31                           | -0.66                           | 1.47                         |
|      | 80.7          | -5.83                           | -0.96                           | 1.49                         |
|      | 83.8          | -5.04                           | -0.86                           | 1.52                         |
|      | 87.3          | -5.07                           | -1.17                           | 1.60                         |
|      | 90.6          | -5.24                           | -0.38                           | 1.46                         |
|      | 94.5          | -5.83                           | -0.97                           | 1.43                         |
|      | 97.8          | -4.62                           | -1.09                           | 1.51                         |
| 1978 | 100.5         | -4.93                           | -1.01                           | 1.57                         |
|      | 104.4         | -5.17                           | -0.97                           | 1.37                         |
|      | 106.7         | -5.51                           | -1.01                           | 1.34                         |
|      | 110.7         | -4.76                           | -1.22                           | 1.51                         |
| 1979 | 112.7         | -4.91                           | -1.04                           | 1.56                         |
|      | 116.7         | -5.08                           | -1.29                           | 1.38                         |
|      | 121.5         | -4.78                           | -1.46                           | 1.41                         |
|      | 124.3         | -4.96                           | -1.45                           | 1.33                         |
|      | 127.4         | -4.90                           | -1.16                           | 1.49                         |
| 1980 | 129.0         | -5.43                           | -1.41                           | 1.42                         |
|      | 132.1         | -5.27                           | -1.54                           | 1.25                         |
|      | 134.2         | -5.24                           | -1.47                           | 1.26                         |
|      | 138.0         | -4.59                           | -1.06                           | 1.44                         |
|      | 140.5         | -5.26                           | -0.91                           | 1.41                         |
| 1981 | 144.3         | -5.30                           | -0.98                           | 1.34                         |
|      | 147.1         | -5.66                           | -1.25                           | 1.30                         |
|      | 150.9         | -4.81                           | -1.25                           | 1.42                         |
|      | 155.1         | -5.46                           | -1.00                           | 1.55                         |
| 1982 | 160.5         | -5.04                           | -1.23                           | 1.38                         |
|      | 165.3         | -4.50                           | -1.21                           | 1.41                         |
|      | 168.3         | -5.06                           | -1.23                           | 1.28                         |

Table III.8a contd.

| Year | Distance<br>(mm) | $\delta^{18}\text{O}(\text{‰})$ | $\delta^{13}\text{C}(\text{‰})$ | Density( $\text{g cm}^{-3}$ ) |
|------|------------------|---------------------------------|---------------------------------|-------------------------------|
| 1984 | 172.0            | -5.22                           | -1.11                           | 1.25                          |
|      | 174.8            | -4.58                           | -1.08                           | 1.35                          |
|      | 177.7            | -5.25                           | -0.77                           | 1.37                          |
|      | 181.2            | -5.10                           | -1.25                           | 1.33                          |
|      | 184.7            | -4.90                           | -1.02                           | 1.31                          |
|      | 188.0            | -4.33                           | -1.36                           | 1.42                          |
| 1985 | 191.1            | -5.39                           | -0.97                           | 1.49                          |
|      | 196.2            | -5.29                           | -1.37                           | 1.42                          |
|      | 200.3            | -5.22                           | -1.27                           | 1.34                          |
| 1986 | 204.3            | -4.64                           | -0.94                           | 1.45                          |
|      | 209.4            | -5.20                           | -1.45                           | 1.37                          |

Table III.8b Oxygen and carbon isotopic record of SR coral (Track-2)

| Year | distance (mm) | $\delta^{18}\text{O}(\text{‰})$ | $\delta^{13}\text{C}(\text{‰})$ | Density(g cm <sup>-3</sup> ) |
|------|---------------|---------------------------------|---------------------------------|------------------------------|
| 1968 | 0.0           | -5.09                           | -1.46                           | 1.74                         |
|      | 3.0           | -4.46                           | -0.31                           | 1.83                         |
| 1969 | 6.0           | -4.09                           | -0.22                           | 1.73                         |
|      | 11.5          | -4.05                           | 0.09                            | 1.77                         |
|      | 16.0          | -4.46                           | 0.14                            | 1.80                         |
| 1970 | 24.0          | -5.05                           | -0.84                           | 1.79                         |
|      | 28.5          | -4.54                           | -0.74                           | 1.68                         |
| 1971 | 34.0          | -5.29                           | -0.37                           | 1.69                         |
|      | 40.0          | -4.54                           | -0.19                           | 1.68                         |
| 1972 | 45.0          | -5.11                           | -0.23                           | 1.71                         |
|      | 50.0          | -4.67                           | 0.00                            | 1.66                         |
| 1973 | 56.5          | -5.34                           | -0.83                           | 1.62                         |
|      | 59.0          | -5.10                           | -1.03                           | 1.53                         |
| 1974 | 63.0          | -4.64                           | -0.78                           | 1.53                         |
|      | 71.0          | -5.28                           | -1.09                           | 1.64                         |
| 1975 | 78.0          | -5.02                           | -0.57                           | 1.56                         |
|      | 83.0          | -5.34                           | -0.85                           | 1.56                         |
| 1976 | 92.0          | -4.76                           | -1.01                           | 1.48                         |
|      | 94.0          | -5.33                           | -0.73                           | 1.38                         |
|      | 98.5          | -5.47                           | -0.95                           | 1.39                         |
| 1977 | 102.5         | -4.61                           | -1.01                           | 1.51                         |
|      | 107.0         | -5.27                           | -0.32                           | 1.48                         |
|      | 110.5         | -5.58                           | -0.96                           | 1.48                         |
|      | 112.0         | -5.48                           | -0.99                           | 1.37                         |
| 1978 | 116.0         | -4.61                           | -0.85                           | 1.51                         |
|      | 120.0         | -5.26                           | -1.08                           | 1.44                         |
| 1979 | 127.0         | -5.49                           | -0.83                           | 1.44                         |
|      | 132.5         | -4.97                           | -1.23                           | 1.24                         |
|      | 138.0         | -4.96                           | -1.16                           | 1.26                         |

Table III.8b contd.

| Year | Distance<br>(mm) | $\delta^{18}\text{O}(\text{‰})$ | $\delta^{13}\text{C}(\text{‰})$ | Density(g cm <sup>-3</sup> ) |
|------|------------------|---------------------------------|---------------------------------|------------------------------|
| 1980 | 144.0            | -5.01                           | -0.53                           | 1.27                         |
|      | 154.0            | -4.96                           | -1.10                           | 1.13                         |
| 1981 | 161.0            | -5.26                           | -1.12                           | 1.16                         |
|      | 164.5            | -5.43                           | -0.81                           | 1.17                         |
|      | 168.0            | -5.42                           | -1.21                           | 1.17                         |
| 1982 | 171.0            | -4.74                           | -1.09                           | 1.36                         |
|      | 174.5            | -5.26                           | -0.59                           | 1.25                         |
|      | 178.0            | -5.40                           | -0.79                           | 1.27                         |
|      | 181.0            | -4.99                           | -1.11                           | 1.12                         |
| 1983 | 184.0            | -4.53                           | -1.06                           | 1.19                         |
|      | 189.0            | -5.12                           | -0.48                           | 1.17                         |
|      | 192.0            | -5.19                           | -0.85                           | 1.18                         |
|      | 194.0            | -5.25                           | -0.99                           | 1.09                         |
| 1984 | 197.0            | -4.66                           | -1.10                           | 1.19                         |
|      | 203.0            | -5.07                           | -0.83                           | 1.23                         |
| 1985 | 210.5            | -5.03                           | -1.31                           | 1.25                         |
|      | 216.5            | -4.95                           | -0.59                           | 1.33                         |
|      | 223.2            | -5.25                           | -1.16                           | 1.30                         |
|      | 226.8            | -4.49                           | -1.57                           | 1.37                         |
| 1986 | 228.0            | -4.58                           | -0.95                           | 1.39                         |
|      | 231.5            | -5.20                           | -0.63                           | 1.37                         |
|      | 237.0            | -5.07                           | -1.19                           | 1.31                         |
|      | 239.5            | -4.74                           | -1.38                           | 1.29                         |
|      | 241.5            | -4.66                           | -1.22                           | 1.34                         |

Table III.12A  $\Delta^{14}\text{C}$  records of the Gulf of Kutch coral

| Sample code | Year of Growth | $\Delta^{14}\text{C}(\text{‰})$ | Sample code | Year of Growth | $\Delta^{14}\text{C}(\text{‰})$ |
|-------------|----------------|---------------------------------|-------------|----------------|---------------------------------|
| CH:88       | 1949-51        | -60 $\pm$ 5                     | CH:80       | 1971-72        | 131 $\pm$ 7                     |
| CH:87       | 1952-54        | -53 $\pm$ 6                     | CH:78       | 1973-75        | 146 $\pm$ 7                     |
| CH:86       | 1955-60        | 0.8 $\pm$ 6                     | CH:77       | 1976-77        | 122 $\pm$ 6                     |
| CH:85       | 1961-63        | 57 $\pm$ 7                      | CH:76       | 1978-80        | 102 $\pm$ 7                     |
| CH:84       | 1964-65        | 120 $\pm$ 7                     | CH:69       | 1981-82        | 99 $\pm$ 7                      |
| CH:83       | 1966-67        | 147 $\pm$ 8                     | CH:68       | 1983           | 96 $\pm$ 7                      |
| CH:82       | 1968           | 170 $\pm$ 6                     | CH:67       | 1984-87        | 71 $\pm$ 6                      |
| CH:81       | 1969-70        | 156 $\pm$ 7                     | CH:66       | 1988-90        | 55 $\pm$ 7                      |

Table III.12B  $\Delta^{14}\text{C}$  records of Thane tree rings

| Sample code | Year of Growth | $\Delta^{14}\text{C}(\text{‰})$ | Sample code | Year of Growth | $\Delta^{14}\text{C}(\text{‰})$ |
|-------------|----------------|---------------------------------|-------------|----------------|---------------------------------|
| CH:191      | 1960           | 238 $\pm$ 6                     | CH:180      | 1971-72        | 434 $\pm$ 7                     |
| CH:190      | 1961           | 260 $\pm$ 6                     | CH:179      | 1973           | 400 $\pm$ 7                     |
| CH:187      | 1962           | 338 $\pm$ 6                     | CH:178      | 1974           | 420 $\pm$ 7                     |
| CH:186      | 1963           | 565 $\pm$ 8                     | CH:177      | 1975           | 354 $\pm$ 6                     |
| CH:185      | 1964-65        | 630 $\pm$ 8                     | CH:176      | 1976           | 340 $\pm$ 7                     |
| CH:184      | 1966           | 587 $\pm$ 8                     | CH:173      | 1977           | 311 $\pm$ 6                     |
| CH:183      | 1967           | 560 $\pm$ 7                     | CH:172      | 1978           | 299 $\pm$ 6                     |
| CH:182      | 1968           | 534 $\pm$ 7                     | CH:171      | 1979-80        | 260 $\pm$ 7                     |
| CH:181      | 1969-70        | 476 $\pm$ 7                     |             |                |                                 |

## List of Publications of the author

- Chakraborty S. and Ramesh R. (1992)** Climatic significance of  $\delta^{18}\text{O}$  and  $\delta^{13}\text{C}$  variations in a banded coral (*Porites*) from Kavaratti, Lakshadweep Islands. In: BN Desai (ed) *Oceanography of the Indian Ocean*. Oxford and IBH Publication (P) Ltd. New Delhi, pp 473-478.
- Chakraborty S. and Ramesh R. (1993)** Monsoon records in Indian corals. In: *Proc. Int. Symp. on Global Change (IGBP)* Waseda Univ., Tokyo pp 648:653.
- Chakraborty S. and Ramesh R. (1993)** Monsoon induced sea surface temperature changes recorded in Indian coral. *Terra Nova* (in press).
- Chakraborty S. and Ramesh R. (1993)** Stable isotopes variations in a coral from the Gulf of Kutch: environmental implications. ID-GBP special publication. DOS, Bangalore (in press)
- Bhushan R., Chakraborty S. and Krishnaswami S. (1993)** Physical Research Laboratory (Chemistry) radiocarbon date list CH-1 Submitted to *Radiocarbon*.
- Chakraborty S., Ramesh R. and Lough J.M. (1993)** Effect of intraband variability on stable isotope and sensity time series obtained from banded corals. Submitted to *Geophys. Res. Lett.*
- Chakraborty S., Ramesh R. and Krishnaswami S. (1993)** Air-sea exchange of  $\text{CO}_2$  in the Gulf of Kutch based on bomb carbon in corals and tree rings. MS in preparation