Variability in the CO₂-Carbonic Acid System Parameters Across Coral Reef Settings in Hawaii: Perspectives from Multi-year Records

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V. References


IV. Conclusions

Multiple sources receive feedbacks that show that tropical coastal sea water chemistry is highly variable with respect to the CO₂-Carbonic Acid system.

- Oceanography

We have been able to observe some reliable relationships and patterns formed during this period, while others exhibited significant variability over the study period. This variability is the result of both short-term (hourly) and longer-term (seasonal) processes.

- Oceanography

In our study, we have been able to observe that the same interval to be used for air pCO₂ is also measured at the ocean water. The yellow line indicates the mean air pCO₂ over the study period. However, air pCO₂ is also measured at the ocean water.

- Oceanography

Figure 3B: CO₂ chemical oceanography and Maser MAVEN-2008 values in the study area.

- Oceanography

Figure 4: Total alkalinity, measured at various locations and depths across the region. The blue line indicates the mean temperature to show temperature changes.

- Oceanography

Table 3: Carbon system parameters (pH, µat CO₂) with values normalized to the mean temperature to show temperature changes.

- Oceanography

Figure 5: The blue line indicates that higher alkalinity values are obtained in areas with higher temperatures. The red line indicates that lower alkalinity values are obtained in areas with lower temperatures.

- Oceanography

Figure 6: Determination of the concentration of CO₂ in the atmosphere and the sea water.

- Oceanography

Table 4: Summary of results presented in this study.

- Oceanography

Figure 7: The blue line indicates that higher alkalinity values are obtained in areas with higher temperatures. The red line indicates that lower alkalinity values are obtained in areas with lower temperatures.

- Oceanography

Figure 8: Determination of the concentration of CO₂ in the atmosphere and the sea water.

- Oceanography

Table 5: Summary of results presented in this study.

- Oceanography

Figure 9: The blue line indicates that higher alkalinity values are obtained in areas with higher temperatures. The red line indicates that lower alkalinity values are obtained in areas with lower temperatures.

- Oceanography

Figure 10: Determination of the concentration of CO₂ in the atmosphere and the sea water.

- Oceanography

Table 6: Summary of results presented in this study.

- Oceanography

Figure 11: The blue line indicates that higher alkalinity values are obtained in areas with higher temperatures. The red line indicates that lower alkalinity values are obtained in areas with lower temperatures.

- Oceanography

Figure 12: Determination of the concentration of CO₂ in the atmosphere and the sea water.

- Oceanography

Table 7: Summary of results presented in this study.

- Oceanography

Figure 13: The blue line indicates that higher alkalinity values are obtained in areas with higher temperatures. The red line indicates that lower alkalinity values are obtained in areas with lower temperatures.

- Oceanography

Figure 14: Determination of the concentration of CO₂ in the atmosphere and the sea water.

- Oceanography

Table 8: Summary of results presented in this study.

- Oceanography

Figure 15: The blue line indicates that higher alkalinity values are obtained in areas with higher temperatures. The red line indicates that lower alkalinity values are obtained in areas with lower temperatures.

- Oceanography

Figure 16: Determination of the concentration of CO₂ in the atmosphere and the sea water.

- Oceanography

Table 9: Summary of results presented in this study.

- Oceanography

Figure 17: The blue line indicates that higher alkalinity values are obtained in areas with higher temperatures. The red line indicates that lower alkalinity values are obtained in areas with lower temperatures.

- Oceanography

Figure 18: Determination of the concentration of CO₂ in the atmosphere and the sea water.

- Oceanography

Table 10: Summary of results presented in this study.

- Oceanography

Figure 19: The blue line indicates that higher alkalinity values are obtained in areas with higher temperatures. The red line indicates that lower alkalinity values are obtained in areas with lower temperatures.

- Oceanography

Figure 20: Determination of the concentration of CO₂ in the atmosphere and the sea water.

- Oceanography

Table 11: Summary of results presented in this study.

- Oceanography

Figure 21: The blue line indicates that higher alkalinity values are obtained in areas with higher temperatures. The red line indicates that lower alkalinity values are obtained in areas with lower temperatures.

- Oceanography

Figure 22: Determination of the concentration of CO₂ in the atmosphere and the sea water.

- Oceanography

Table 12: Summary of results presented in this study.

- Oceanography

Figure 23: The blue line indicates that higher alkalinity values are obtained in areas with higher temperatures. The red line indicates that lower alkalinity values are obtained in areas with lower temperatures.

- Oceanography

Figure 24: Determination of the concentration of CO₂ in the atmosphere and the sea water.

- Oceanography

Table 13: Summary of results presented in this study.