

39th SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) – The
Next Steps (A4)
SETI I : SETI Science and Technology (1)

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SIGNATURES OF UNIVERSAL COMMUNICATION: RHYTHM, SYNCHRONY AND TEMPORAL
PATTERNS OF DOLPHIN COMMUNICATION AS A MODEL.

Abstract

Prosodic information including rhythm, synchrony, signal rates, and spacing between signals is critical in human communication. Such information may be conserved through evolution across species despite the notion that referential and informational content may be species or culturally specific. Since 1985 a resident community of free-ranging Atlantic spotted dolphins have been observed regularly in the Bahamas. Life history, relationships, regular interspecific interactions with bottlenose dolphins, and multi-modal underwater communication signals have been documented. Dolphins display social communication signals modified for water, their body types, and sensory systems. The objective of this study was to determine the degree of synchrony and rhythm contained in these dolphin communication signals and to explore temporal patterns of this information. Dolphin synchronized behavior was recorded underwater using a Sony PC110 video camera with hydrophone input. Body postures and correlated vocalizations (including interval spacing between vocalizations) were measured. Dolphins communicated using synchronized vocalizations and intervals of vocalizations (burst-pulsed vocalizations, screams) and synchronized body movements (inverted swimming, head-turning) during aggression. When the escalation and cessation of these activities is plotted temporally, these multi-modal signals may represent a new approach to recognizing organized and intelligent signatures of information. Although analog in nature, the potential patterns in either analog or transformed into a digital form may give insight into potential coding of messages and meaning during real-time or remote translations.