Development of a power control system for AUVs probing for underwater mineral resourcess(PDF)

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Title: Development of a power control system for AUVs probing for underwater mineral resourcess

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摘要: Valuable mineral resources are widely distributed throughout the seabed. autonomous underwater vehicles (AUVs) are preferable to remotely-operated vehicles (ROVs) when probing for such mineral resources as the extensive exploration area makes it difficult to maintain contact with operators. AUVs depend on batteries, so their power consumption should be reduced to extend exploration time. Power for conventional marine instrument systems is incorporated in their waterproof sealing. External intermittent control of this power source until termination of exploration is challenging due to limitations imposed by the underwater environment. Thus, the AUV must have a power control system that can improve performance and maximize use of battery capacity. The authors developed such a power control system with a three-step algorithm. It automatically detects underwater operational states and can limit power, effectively decreasing power consumption by about 15%.

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