

IT-BASED INTERDISCIPLINARY AREAS BETWEEN GIST AND EURASIA: UNDERWATER LOCALIZATION AND IMAGING FOR OFF-SHORE AQUACULTURE MONITORING AND CONTROL

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Last 2 decades, people enjoyed all privileges of wireless TERRESTRIAL communications and computing, not only at the level of scientific interests but also at the personal conveniences. We call this as a benefit of information technology, IT REVOLUTION, or IT-oriented society. Nobody refuses to say that IT is one of the leading technologies, and IT tools are most productive, most fruitful and most effective in many senses. Subsequently, we are now witnessing diverse applications of IT tools to expand the engineering completeness of various so-called classical engineering fields. Those interdisciplinary areas are IT-BT, IT-NT, and IT-xT, where x includes any conventional engineering and technology. Once, mathematics leads all good sciences, and all good sciences have been transformed into practical engineering, now engineering fields undergo a big shaping again with the strong support of IT tools.

Now, we have interest about how Oceanology or Marine acoustic technologies are turning from a big science into practical and personalized technology. Especially, we will think about whether we can enjoy underwater space similarly like terrestrial open spaces, where

Living Ocean:
where/when/what ?



electromagnetic wireless communication so-called smartphone is an important IT tool. What are the issues enabling the underwater space to be enjoyable? One simple issue is whether we can localize (LOCATION) and synchronize (TIME). By using these simple measures, we could reconfigure a blind underwater as a new manageable space, and extract and compose a certain complex information enabling the underwater enjoyable.

We need further development, possibly with international collaborations, on the underwater ranging and localization issues, especially near the shore. This coastal underwater localization problem will be technically approached by an IT engineer, a little differently from that of the ocean acoustic scientist, yet fully utilizing known scientific knowledge and tools from the oceanology including a ray tracing model and prediction tools.