

## **Yoshida Award: Research Achievement Category**

### **Durability Assessment and Development of Maintenance Systems for Concrete Structures**



#### **Koji Takewaka**

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Professor Emeritus, Kagoshima University

Throughout his research career, Dr. Koji Takewaka has focused on the durability assessment of concrete structures and the development of maintenance systems. His achievements are reflected in JSCE standard specifications and guidelines. In particular, the JSCE's inclusion of a verification method for chloride-induced reinforcing steel corrosion in the 1999 edition of the Standard Specifications for Concrete Structures, a world first, would not have been possible without his long-term research. His contributions to the current specifications (including an analysis method for chloride diffusion in concrete considering the chloride environment, formulations of the relationship between chloride diffusion coefficient and concrete water-to-cement ratio, and a method of quantitatively evaluating the effect of the fixing phenomenon on chloride diffusion) indicate the significance of his contribution to improving the durability of Japan's modern infrastructure.

In other work, Dr. Takewaka has investigated the threshold value of chloride concentration for the onset of reinforcement corrosion and the limit value of reinforcement corrosion for the initiation of corrosion cracking. His research on the effect of reinforcement corrosion on loading capacity is widely referred to all over the world. Further, he has acted as chairman of the research committee investigating non-corroding reinforcement materials, such as epoxy-coated and galvanized reinforcing bars, and anticorrosion methods such as electrical corrosion protection and silicate surface modification. This work has led to the publishing of recommendations for design and construction.

For the above reasons Dr. Takwaka is recognized as having made a significant contribution to the progress and development of concrete engineering technology and is recognized as being a worthy recipient of the Yoshida Award in the Research Achievement Category.