

# ***Stability Analysis of Zayandeh-Rud Double arc Dam Body and Foundation Using the Results of Instrumentation and Numerical Modeling***

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## ***ABSTRACT***

The instrument performs protection, preservation and control dam behavior, failure detection and timely treatment to prevent the occurrence of the risks and increase the longevity of the dam during construction and operation. In this paper, Zayandeh-Rud dam instrumentation data were analyzed and the stability condition of the dam, foundation and abutments are evaluated. Finally, considering the position of the instruments the distinct element method was employed. The effect of shear and normal stiffness on body and foundation displacements was investigated and the actual values of the shear and normal stiffness were selected as the input model. In this study, Mohr-Coulomb criterion are used for joint behaviors, which are defined as boundary between rock foundation and dam body and boundary between concrete arch blocks, and comparison between measured and calculated values by numerical models has been investigated and good agreement between the results obtained. Results of numerical modeling and measurements have shown that the dam body and foundation are stable. Due to poor geological condition

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of right wall of dam, the displacements obtained in comparison with the left wall are higher. Also demonstrates that stress and deformation of dam body and foundation, strongly influenced by variation of lake water level.

**KEYWORDS**

Instrumentation, displacement, shear and normal stiffness, rock foundation, distinct element method

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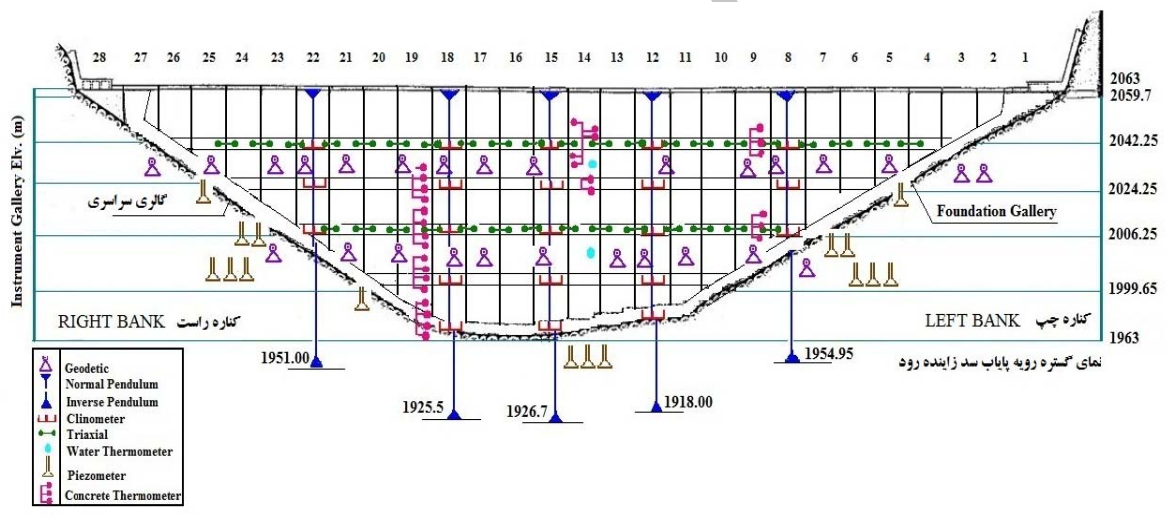
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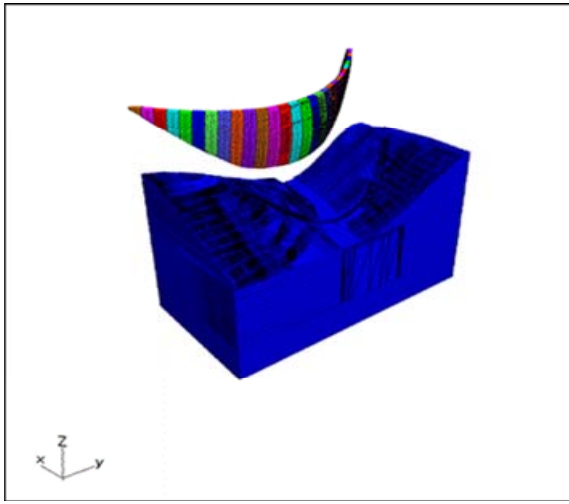
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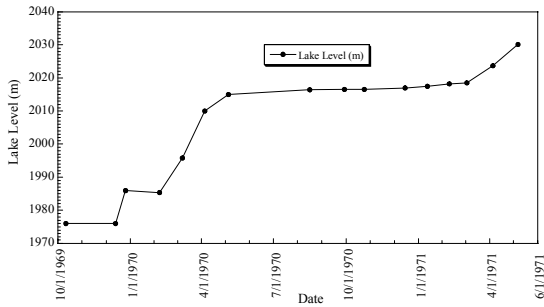
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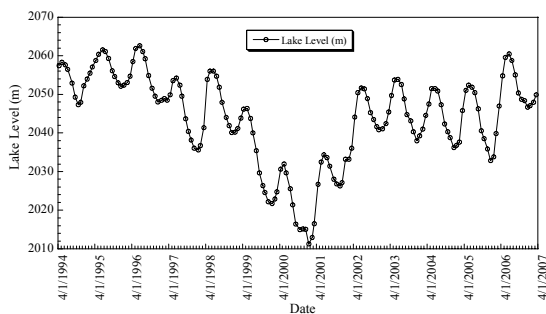
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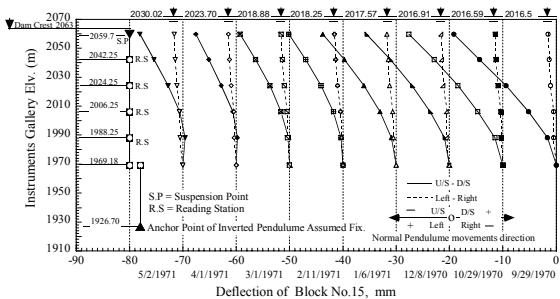
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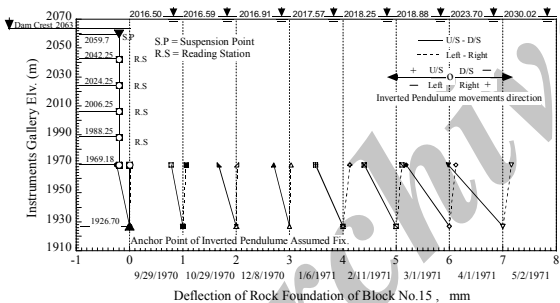


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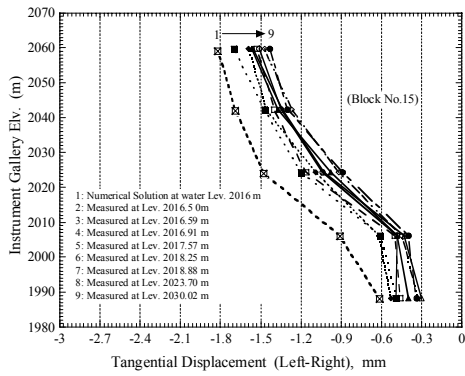
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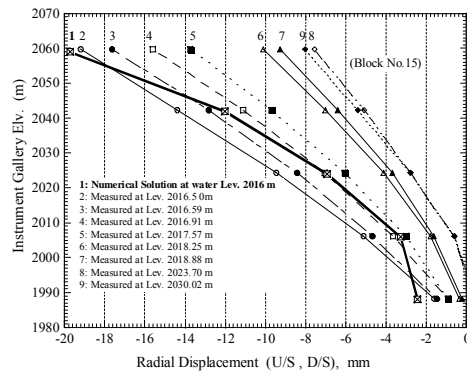
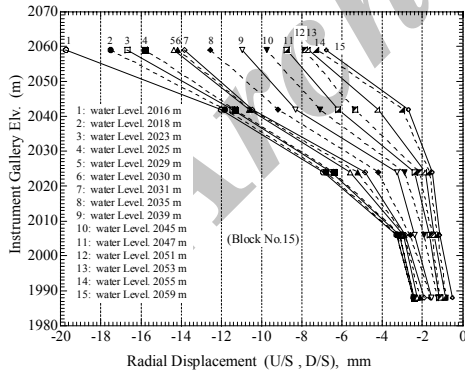
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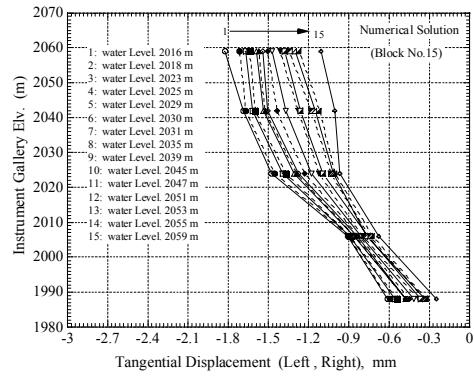
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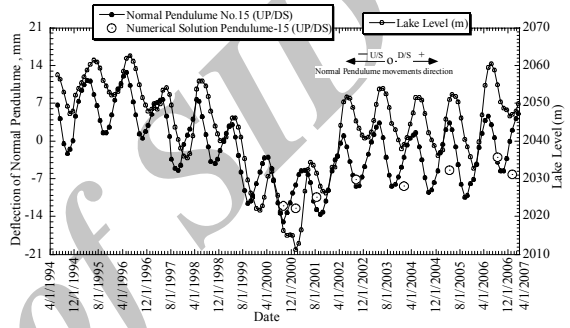
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