

Nejc Pogačnik:

## **HIDRAVLIČNO MODELIRANJE VALOVANJA S STALNIM SPEKTROM**

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Oddano: november 2004

### **Povzetek**

Razvoj prostora narekujejo naše želje po izboljšanju funkcionalnosti, kvalitete in privlačnosti prostora. Zato je pomembno, da pri tem sodelujejo strokovnjaki iz vseh področij in tako prispevajo svoja specializirana znanja za pripravo tehnično, okoljsko in družbeno najbolj sprejemljivih predlogov za poseg v prostor. V svoji seminarski nalogi sem izdelal hidravlični model ponazoritve vpliva valovanja za primer umestitve nove marine v zaliv med Semedelo in Koper. Kot primerno orodje za doseg tega cilja sem izbral krovno programsko opremo Surface Water Modelling System, v kateri sem izdelal model valovanja s stalnim valovnim spektrom. Izbrana programska oprema omogoča določitev višine, hitrosti, periode, smeri ter področij loma valovanja. Vsebino seminarja sem razdelil na tri sklope, s katerimi sem želel celostno predstaviti valovanje. V prvem sklopu seminarske naloge sem predstavil teorijo valovanja malih amplitud, ki sem jo nadgradil z teoretičnimi osnovami matematičnega modela Stwave. Sledi opis parametrov, zasnov in rešitev v modelu Stwave. Delo pa sem zaokrožil z dejansko uporabo modela na idejni študiji vpliva valovanja na predvideno novo marino v Koperu.

**Ključne besede:** hidravlični model, valovanje, valovni spekter, teorija valovanja malih amplitud

### **Abstract**

Space planning is almost always consequence of our function in space, wishes and needs. To satisfy all ideas and demands there has to be a very heavy support from all experts that are in any way dealing with space. In my work I tried to make a new bay hydraulic wave model that includes new planed Koper marine. After consideration I have decided for, in my opinion, the most appropriate software equipment Surface Water Modeling System with special developed software for wave analyses Steady-State Spectral Wave Model - Stwave. Selected software equipment enables to define wave heights, velocity, periods and directions and wave refraction areas. The content of my paper is divided in three segments. In the first one I have described linear wave theory that was upgraded with the theory from numerical model Stwave. The following segment describes all input and output parameters from Stwave. Finally I have closed my work with actual use of the software in a real wave problem by implementing new marine in a bay between Semedela and Koper.

**Key words:** hydraulic model, wave, wave specter, linear wave theory