

Application of ANUGA to Urban Flooding Problems in Wollongong

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Without the availability of a cheap and reliable two dimensional hydrodynamic hydraulic model, it has been difficult to accurately model flood behaviour in an urbanised environment. When it was discovered that a free and very flexible two dimensional model had been developed, the problem of modelling complex flow regimes was made much easier.

Over the last four months, a number of ANUGA models have been set up to solve some very complicated flooding problems within the City of Wollongong.

The first model is within the JJ Kelly catchment which is the catchment in which the city of Wollongong is located. This catchment has a long history of flooding but until now, Council has not had the funding or resources to investigate.

The second model is within the Mullet Creek catchment south of Wollongong. During very small rainfall periods, a major access road into the suburb of Horsley is cut by flood. ANUGA was used to determine the reasons for flooding and to develop a solution to alleviate the flooding problem.

The third model is within the Hooka Creek catchment located in Berkeley, just south of Wollongong. This catchment drains to Lake Illawarra.

As ANUGA is still in development, verification of the results have been performed with the use of a widely accepted rainfall runoff model called WBNM. For each of the above models, flow hydrographs and volumes were compared to determine if ANUGA was at least reproducing similar results.