

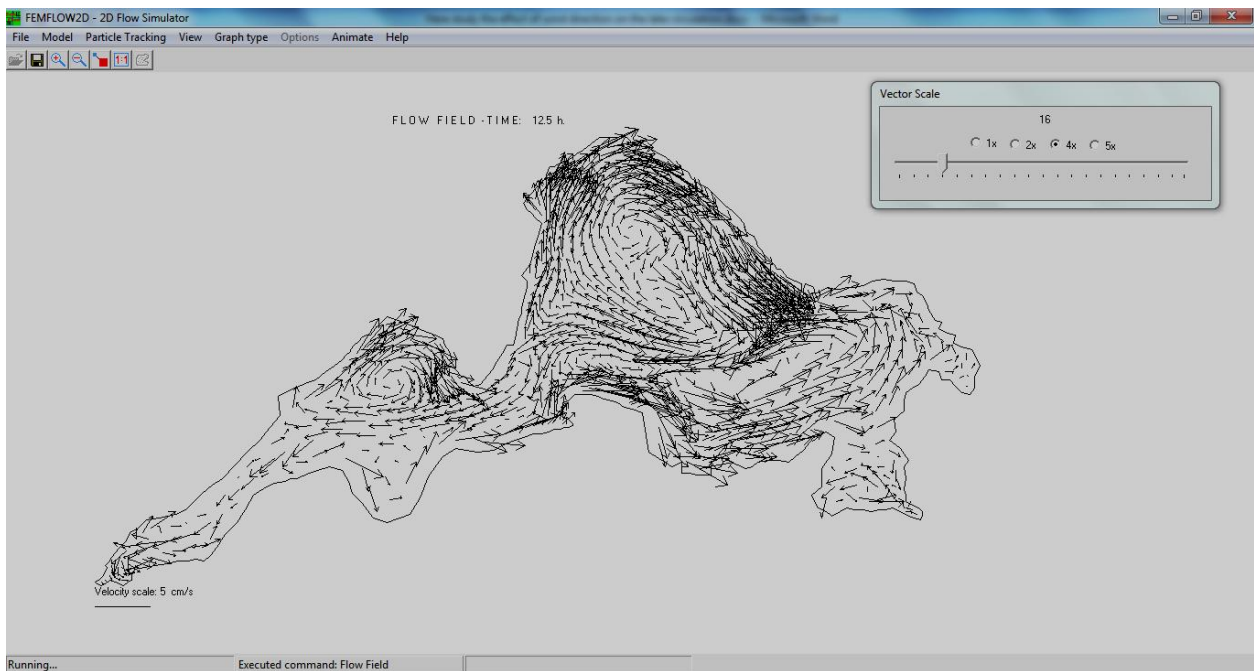
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Timo Huttula; Course on: Modeling in aquatic environment

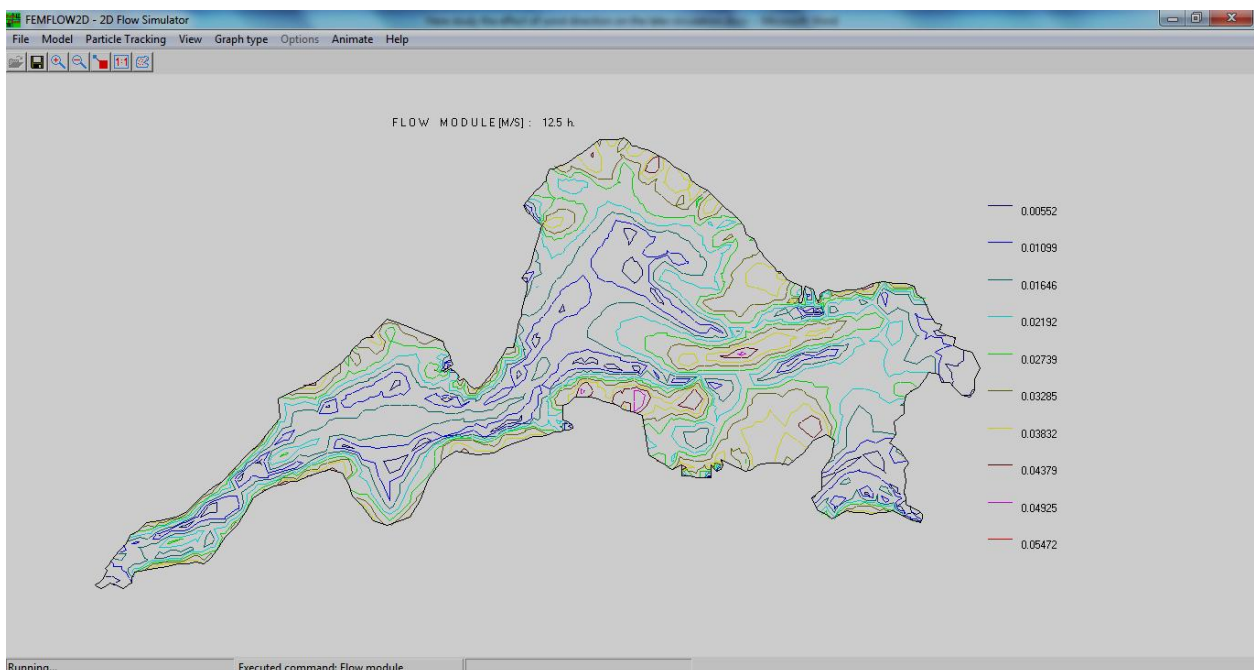
Exercise 3: Questions 1 and 2

Here study the effect of wind direction in four different cases (W,S,E,N) on the lake circulation by using 2D circulation model FemFlow. We have constant wind velocity 5m/s in each case. Simulation time 12.5 h.

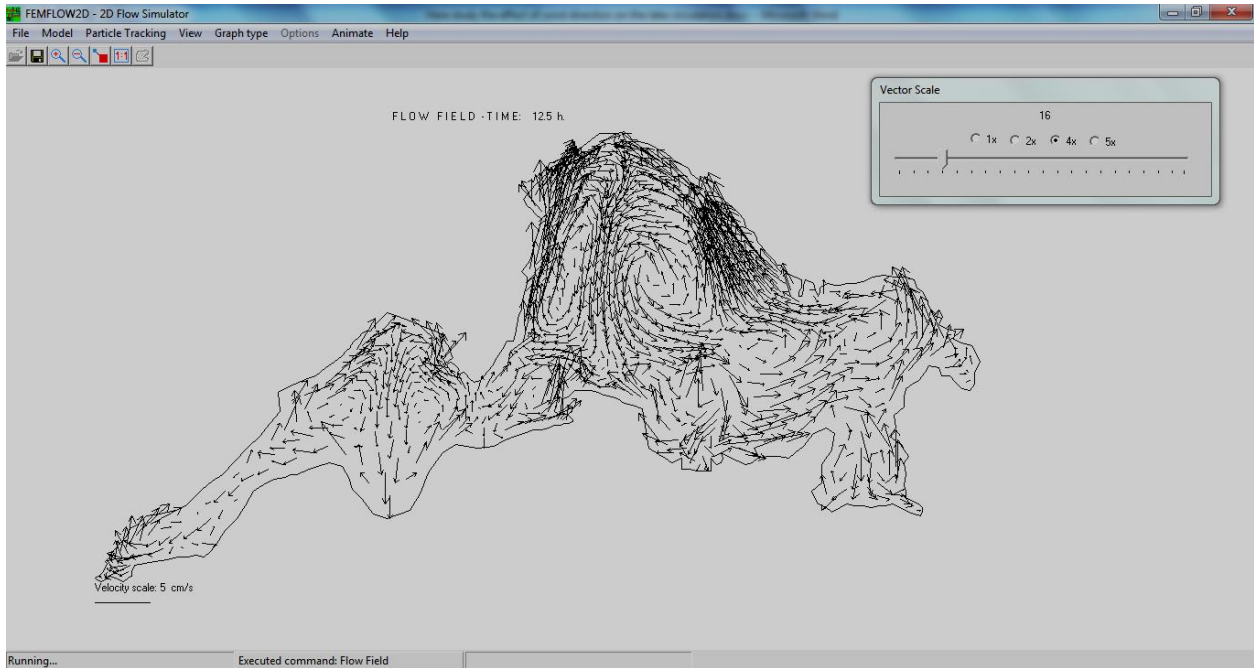
Case 1. Wind from West 5 m/s. Model gives the circulation in the lake as below.



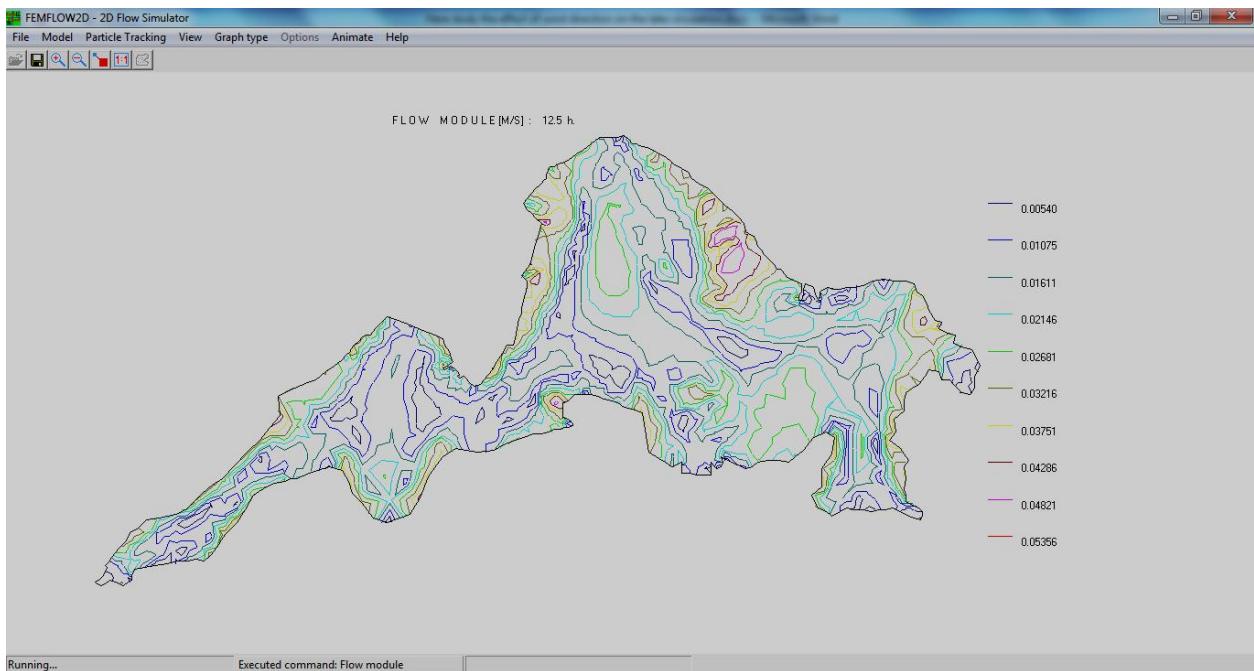
Velocity scalar (module) distribution as isolines is shown in below:



Case 2. Wind from South 5 m/s. Model gives the circulation in the lake as below.



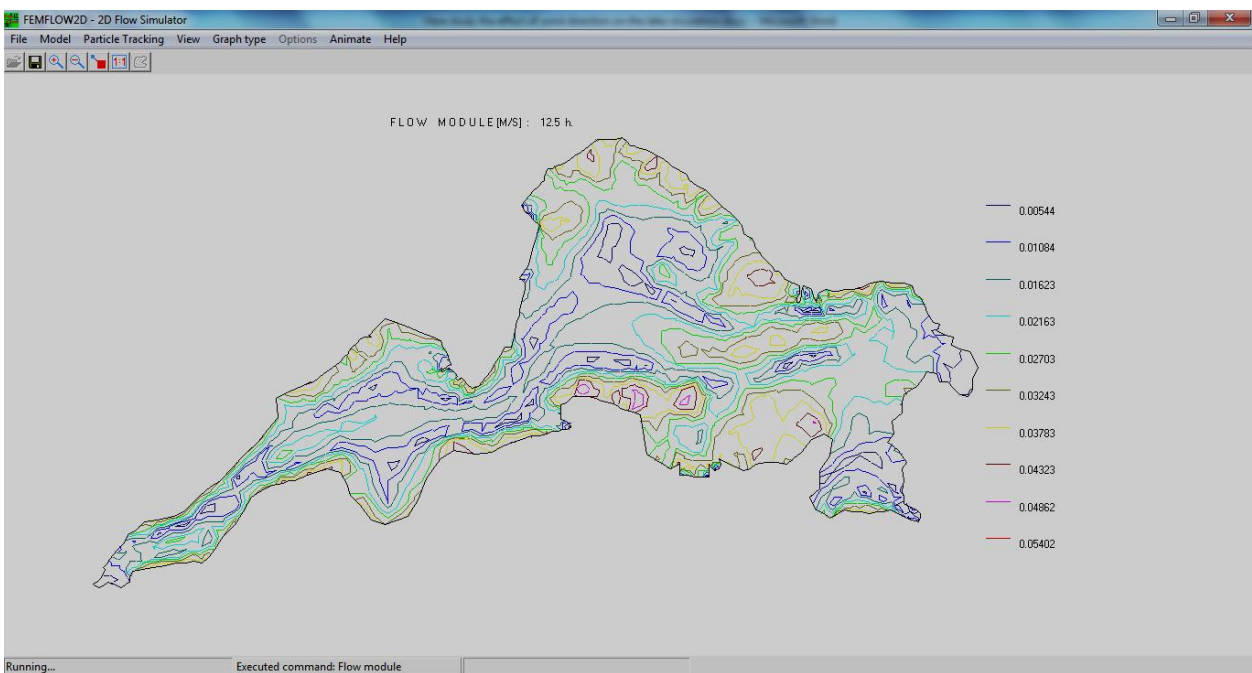
Velocity scalar (module) distribution as isolines is shown in below:



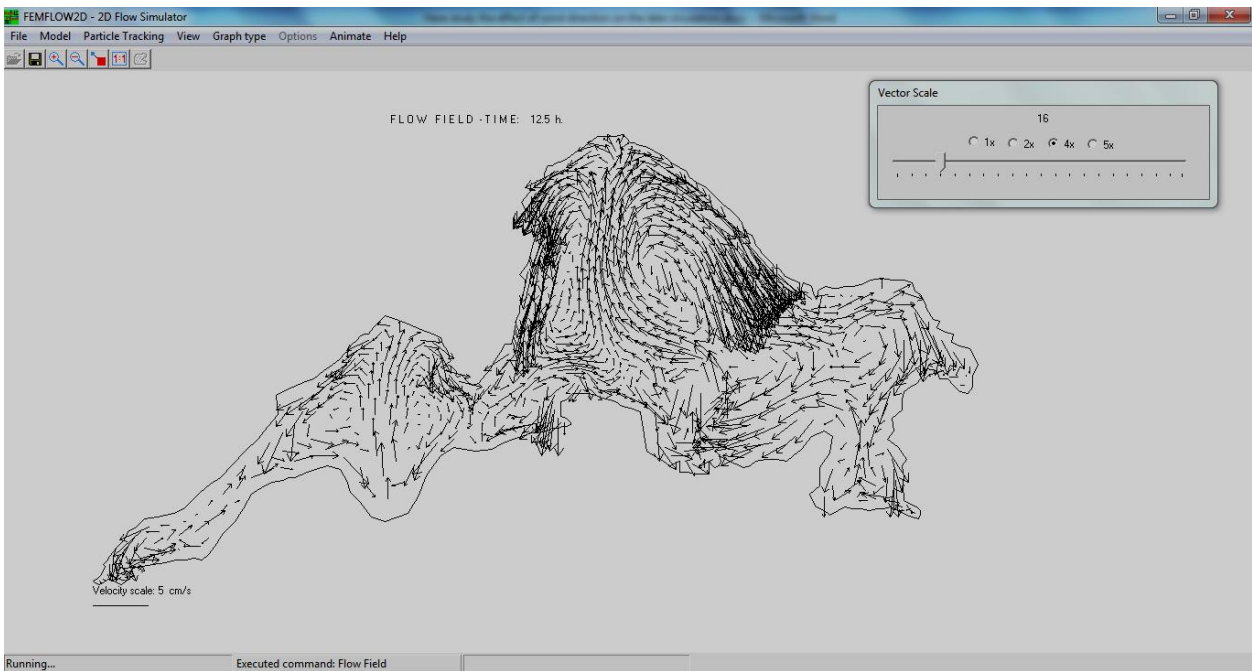
Case 3. Wind from East 5 m/s. Model gives the circulation in the lake as below.



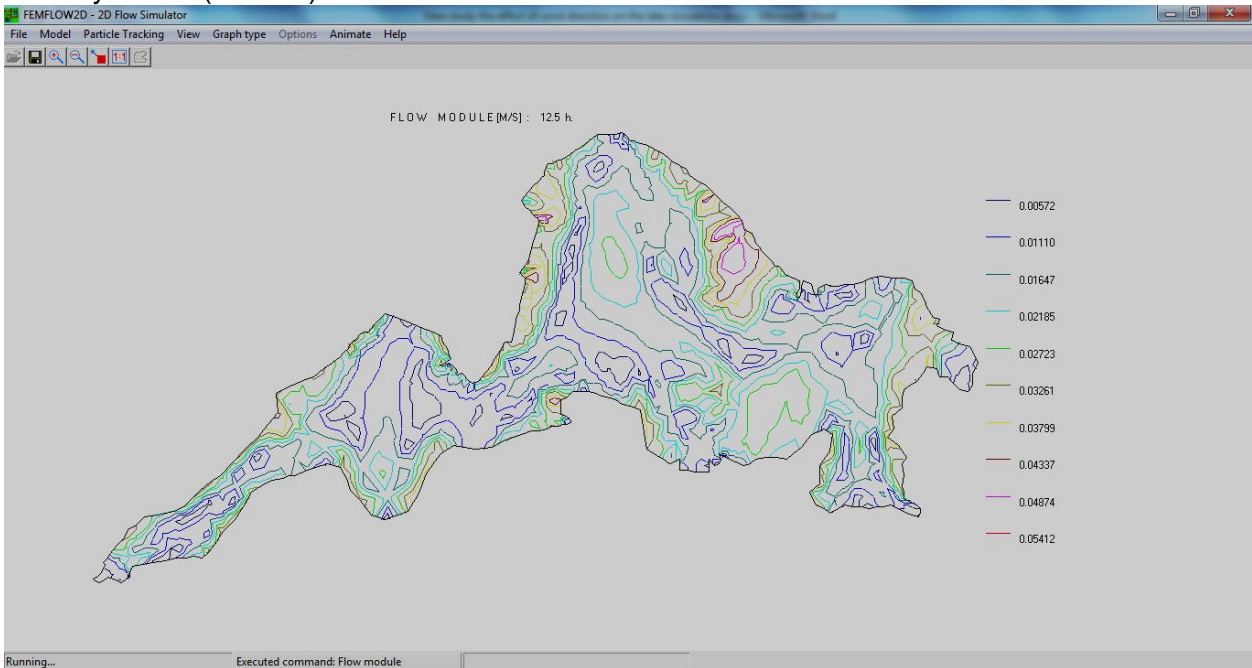
Velocity scalar (module) distribution as isolines is shown in below:



Case 4. Wind from North 5 m/s. Model gives the circulation in the lake as below.



Velocity scalar (module) distribution as isolines is shown in below:



Q1: What is the effect of wind direction on the flow field?

Q2: What is the effect of wind direction on the velocity distribution?