

Islands

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Abstract

Let an $n \times m$ rectangular board be given. We associate a real number (altitude) to each cell, that is a 1×1 square. Two different cells are neighbors if they have at least a point in common. A rectangular subtable S is called an island if the altitude of each cell in S is greater than the altitude of the neighbors of S . The motivation is obvious, when we imagine a vast rainfall over the board, the above defined islands will be formed. A basic question is the following: What is the maximum number of different islands?

In the talk, we will show how Carsten is connected to this problem. We will give a solution using some graph theory. If time permits, we will describe several generalizations and open problems.