SUMMARY OF THE INVENTION

[0004a] In one aspect, there is provided a method for identifying and extracting fluid layers and fluid reservoirs in one or more bodies representing a geological structure, which comprises: a) loading a plurality of bodies, wherein each body includes a top patch, a center of mass and a volume; b) assigning a fluid contact flag to each respective body, wherein each fluid contact flag is designated as empty; c) selecting a fluid contact flag that is assigned to one of the plurality of bodies with a top patch that is a fluid contact; d) converting the selected fluid contact flag from empty to a fluid contact representing a top-fluid contact flagged body; e) selecting each one of the plurality of bodies that is one of in a same fault block and in a same stratigraphic layer as the top-fluid contact flagged body; f) identifying each body selected as one of in the same fault block and in the same stratigraphic layer as the top-fluid contact flagged body, which is a continuation of the top-fluid contact flagged body, using a computer processor; g) repeating steps c) – f) for each fluid contact flag assigned to one of the plurality of bodies with a top patch that is a fluid contact; and h) separating each top-fluid contact flagged body and each body identified as a respective continuation of the top-fluid contact flagged body from the plurality of bodies into a group of fluid-layer bodies.

[0004b] In another aspect, there is provided a non-transitory program carrier device tangibly carrying computer-executable instructions for identifying and extracting fluid layers and fluid reservoirs in one or more bodies representing a geological structure, the instructions being executable to implement: a) loading a plurality of bodies, wherein each body includes a top patch, a center of mass and a volume; b) assigning a fluid contact flag to each respective body, wherein each fluid contact flag is designated as empty; c) selecting a fluid contact flag that is assigned to one of the plurality of bodies with a top patch that is a fluid contact; d) converting the selected fluid contact flag from empty to a fluid contact representing a top-fluid contact flagged body; e) selecting each one of the plurality of bodies that is one of in a same fault block and in a same stratigraphic layer as the top-fluid contact

flagged body; f) identifying each body selected as one of in the same fault block and in the same stratigraphic layer as the top-fluid contact flagged body, which is a continuation of the top-fluid contact flagged body; g) repeating steps c) – f) for each fluid contact flag assigned to one of the plurality of bodies with a top patch that is a fluid contact; and h) separating each top-fluid contact flagged body and each body identified as a respective continuation of the top-fluid contact flagged body from the plurality of bodies into a group of fluid-layer bodies.

[0004c] In yet another aspect, there is provided a non-transitory program carrier device tangibly carrying computer-executable instructions for identifying and extracting fluid layers and fluid reservoirs in one or more bodies representing a geological structure, the instructions being executable to implement: a) loading a plurality of bodies, wherein each body includes a top patch; b) assigning a fluid contact flag to each respective body, wherein each fluid contact flag is designated as empty; c) selecting a fluid contact flag that is assigned to one of the plurality of bodies with a top patch that is a fluid contact; d) converting the selected fluid contact flag from empty to a fluid contact representing a top-fluid contact flagged body; e) selecting each one of the plurality of bodies that is one of in a same fault block and in a same stratigraphic layer as the top-fluid contact flagged body; f) identifying each body selected as one of in the same fault block and in the same stratigraphic layer as the top-fluid contact flagged body, which is a continuation of the top-fluid contact flagged body; g) repeating steps c) – f) for each fluid contact flag assigned to one of the plurality of bodies with a top patch that is a fluid contact; h) separating each top-fluid contact flagged body and each body identified as a respective continuation of the top-fluid contact flagged body from the plurality of bodies into a group of fluid-layer bodies; i) assigning a reservoir flag to each respective body in the group of fluid-layer bodies, wherein each reservoir flag is designated as empty; j) selecting a reservoir flag that is assigned to one of the fluid-layer bodies; k) converting the selected reservoir flag from empty to a fluid type based on the fluid contact flag representing a fluid-reservoir flagged body; l) selecting each one of the fluid-layer bodies that has a same fluid contact as the fluid-reservoir flagged body and includes a

shared patch with the fluid-reservoir flagged body that seals against fluid flow; m) identifying each fluid-layer body selected that has the same fluid contact as the fluid-reservoir flagged body, that includes a shared patch with the fluid-reservoir flagged body, which seals against fluid flow, and that is a continuation of the fluid-reservoir flagged body; n) repeating steps j) – m) for each reservoir flag assigned to one of the fluid-layer bodies; and o) separating each fluid-reservoir flagged body and each fluid-layer body identified as a respective continuation of the fluid-reservoir flagged body from the group of fluid-layer bodies into a group of fluid-reservoir bodies.