



- (51) **International Patent Classification:**
G01V 1/50 (2006.01) *G06F 19/00* (2011.01)
- (21) **International Application Number:**
PCT/AU2013/001334
- (22) **International Filing Date:**
20 November 2013 (20.11.2013)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
2012905042 20 November 2012 (20.11.2012) AU
- (71) **Applicant:** STOCHASTIC SIMULATION LIMITED
[AU/AU]; Suite 3, 85 Guthrie Street, Osborne Park, Western Australia 6017 (AU).
- (72) **Inventor:** WADSLEY, Andrew; 85 Guthrie St, Osborne Park, Western Australia 6017 (AU).
- (74) **Agent:** ROHAN WALLACE PATENT AND TRADE-MARK SERVICES; PO Box 1006, Bentley DC, Western Australia 6983 (AU).

(81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) **Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

[Continued on next page]

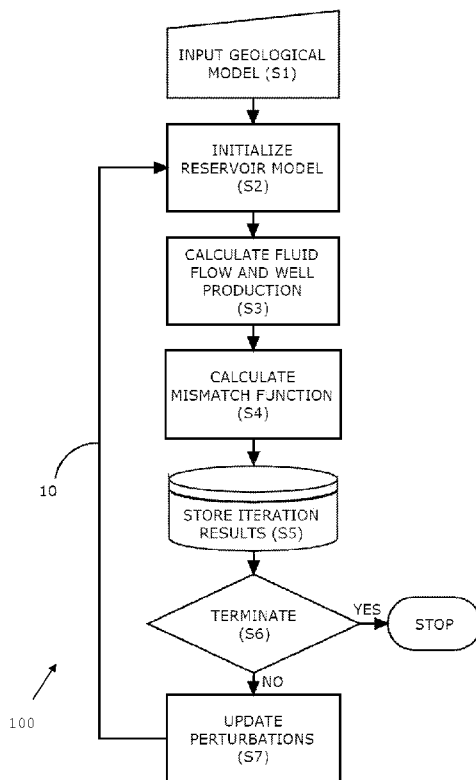
(54) **Title:** METHOD AND SYSTEM FOR CHARACTERISING SUBSURFACE RESERVOIRS

FIG. 1

(57) **Abstract:** A computing apparatus (1000) for and method (100) of characterising a subsurface reservoir is disclosed. The method comprises: (i) receiving data representing a geological model of a reservoir (S1), the reservoir model comprising a plurality of grid-cells, where the reservoir model is divided into the said grid-cells, and a location or locations of one or more boreholes within the reservoir being modelled; (ii) receiving data representing a specification reservoir parameters for generating geological realisations of the modelled reservoir (S2); (iii) calculating the volume and pressure of each fluid phase in each grid-cell from the reservoir parameters a plurality of discrete time points, wherein a property of the grid-cells or the time points are not uniform amongst all the grid-cells (20); (iv) calculating the flux of each fluid phase between grid-cells and boreholes for each time point from the calculated volumes and pressures (S3); (v) calculating borehole production for each borehole from the calculated fluxes (36).



Published:

— *with international search report (Art. 21(3))*