



(43) International Publication Date
18 October 2012 (18.10.2012)

- (51) **International Patent Classification:**
G01V 1/28 (2006.01) *G01V 1/30* (2006.01)
- (21) **International Application Number:**
PCT/US2012/026491
- (22) **International Filing Date:**
24 February 2012 (24.02.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/446,677 25 February 2011 (25.02.2011) US
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(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, 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, IS, JP, KE, KG, KM, 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, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, 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, MD, 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, ML, MR, NE, SN, TD, TG).

Published:

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

(88) **Date of publication of the international search report:**
14 March 2013

(54) **Title:** DETECTION OF SINKHOLES OR ANOMALIES

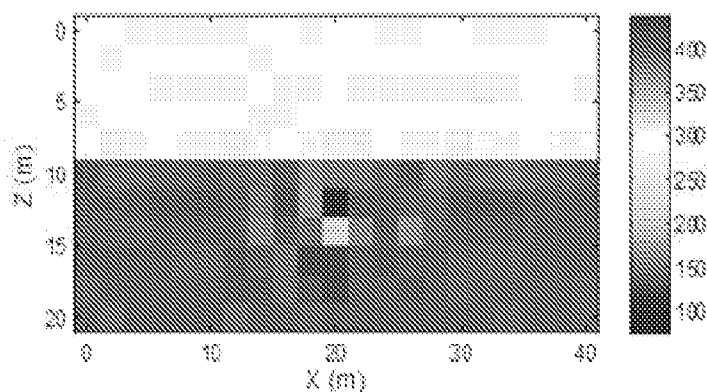


FIG. 4c

(57) **Abstract:** Systems and methods are provided for detecting subterranean properties associated with a geological domain. One example method may comprise obtaining waveform information corresponding to a geological domain. The method may further comprise performing a global inversion on the waveform information. Furthermore, the method may comprise performing a deterministic inversion on the waveform information. The method may also comprise determining one or more subterranean properties associated with the geological domain based at least in part on the global inversion and the deterministic inversion.

A. CLASSIFICATION OF SUBJECT MATTER***G01V 1/28(2006.01)i, G01V 1/30(2006.01)i***

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G01V 1/28; G01V 3/18; G01V 1/40; G01V 1/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: waveform, property, inversion, geological, Monte-Carlo, stochastic, algorithm and similar terms.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2010-151354 A1 (EXXONMOBIL UPSTREAM RESEARCH COMPANY et al.) 29 December 2010 See paragraphs 15-21,43,47, claims 1-5, 12 and figure 3.	1-4,8,9,15,18
Y	See paragraphs 15-21,43,47, claims 1-5, 12 and figure 3.	6-7,10-14,20
Y	US 2009-0070042 A1 (BIRCHWOOD RICHARD et al.) 12 March 2009 See paragraph 75, claim 1 and figure 1.	6-7
Y	US 7373252 B2 (SHERRILL FRANCIS GARROU et al.) 13 May 2008 See column 4 line 60-column 5 line 7 and figure 2.	10-14,20
A	WO 2009-117174 A1 (EXXONMOBIL UPSTREAM RESEARCH COMPANY et al.) 24 September 2009 See the whole document.	1-20



Further documents are listed in the continuation of Box C.



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"&" document member of the same patent family

Date of the actual completion of the international search

30 NOVEMBER 2012 (30.11.2012)

Date of mailing of the international search report

03 DECEMBER 2012 (03.12.2012)

Name and mailing address of the ISA/KR

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City, 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/026491

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2010-151354 A1	29.12.2010	None	
US 2009-0070042 A1	12.03.2009	AR 068417 A1 MX 2010002660 A WO 2009-035869 A1	18.11.2009 30.04.2010 19.03.2009
US 7373252 B2	13.05.2008	None	
WO 2009-117174 A1	24.09.2009	AU 2009-226041 A1 CA 2711126 A1 CN 101952743 A EP 2260331 A1 KR 10-2011-0000634 A US 2011-0000678 A1	24.09.2009 24.09.2009 19.01.2011 15.12.2010 04.01.2011 06.01.2011