



(51) International Patent Classification:

G06F 19/00 (2011.01) G01 V9/00 (2006.01)  
G06T 17/05 (2011.01)

(21) International Application Number:

PCT/US2011/030041

(22) International Filing Date:

25 March 2011 (25.03.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/766,355 23 April 2010 (23.04.2010) US

(71) Applicant (for all designated States except US):  
**CHEVRON U.S.A. INC.** [US/US]; 6001 Bollinger  
Canyon Road, San Ramon, California 94583 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **HENNENFENT,  
Gilles** [FR/US]; 1538 Promontory Terrace, San Ramon,  
California 94583 (US).

(74) Agents: **HANZE, Carlos L.** et al; Chevron Corporation,  
Law Department, Post Office Box 6006, San Ramon, Cal-  
ifornia 94583-0806 (US).

(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, RO, RS, RU, 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, 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).

**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(H))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(Hi))

**Published:**

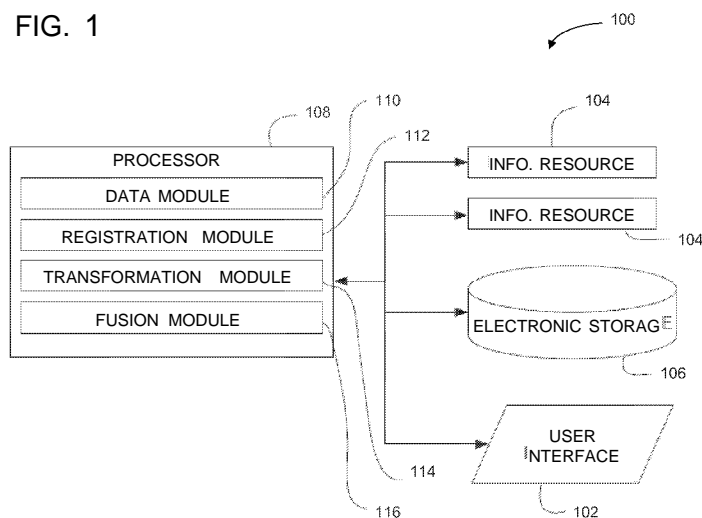
- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

22 December 2011

(54) Title: FUSING GEOPHYSICAL DATA REPRESENTING A GEOPHYSICAL SPACE

FIG. 1



(57) Abstract: Geophysical data representing at least first and second overlapping geophysical spaces may be aggregated. A first set of geophysical data representing the first geophysical space and a second set of geophysical data representing the second geophysical space may be obtained. The second set of geophysical data may be separate and discrete from the first set of geophysical data. The first set of geophysical data may be transformed from a first parametric domain to a third parametric domain, while the second set of geophysical data may be transformed from a second parametric domain to the third parametric domain. The first set of geophysical data may be fused with the second set of geophysical data in the third parametric domain to create a fused set of geophysical data. The fused set of geophysical data may be transformed from the third parametric domain to a fourth parametric domain.

## INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/US2011/030041****A. CLASSIFICATION OF SUBJECT MATTER****G06F 19/00(2011.01)i, G06T 17/05(2011.01)1, G01V 9/00(2006.01)1**

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)

G06F 19/00; G06F 15/00; G06K 5/04; G01S 13/89; G01V 3/00; G01S 7/42; G01V 5/00

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) &amp; Keywords: fusion, transform, geophysical data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 05321613A A (PORTER; DAVID W. et al.) 14 June 1994 See column 5 line 26 - column 6 line 16; claims 1, 4, 7; and figure 1.	1-15
A	US 05307272A A (BUTLER; MILLARD T. et al.) 26 April 1994 See abstract; column 12 line 18 - column 13 line 5; claim 1; and figure 2.	1-15
A	US 2006-0041795 A1 (JEFFREY GABELMANN et al.) 23 February 2006 See paragraph [0074] - paragraph[0077] ; claims 7, 18; and figures 11-13.	1-15
A	US 2002-0109622 A1 (GILBERT F. MICELI et al.) 15 August 2002 See paragraph[0058] and figure 7.	1-15

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

27 OCTOBER 2011 (27.10.2011)

Date of mailing of the international search report

**27 OCTOBER 2011 (27.10.2011)**

Name and mailing address of the ISA/KR

Korean Intellectual Property Office  
Government Complex-Daejeon, 189 Cheongsa-ro,  
Seo-gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

LEE, Jung Suk

Telephone No. 82-42-481-5585



# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US201 1/030041

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 0532 16 13A A	14 .06 . 1994	None	
US 05307272A A	26 .04 . 1994	GB 2259 146 A US 05307272A A	03.03. 1993 26.04. 1994
US 2006-0041795 A1	23 .02 .2006	CA 2582576 A1 EP 1779 146 A2 N02007 1445A US 7 15 1466 B2 Wo 2006-02870 1 A2 Wo 2006-02870 1 A3	16 .03 .2006 02.05. 2007 18 .05 .2007 19 . 12 .2006 16 .03 .2006 16 .03 .2006
US 2002-0 109622 A1	15 .08 .2002	AU 200 1-24560 A 1 AU 200 1-49305 A 1 AU 2456001 A CA 2395848 A1 CA 2403462 A1 MX PA02006311A MX PA02006311A US 200 1-0035836 A1 US 2003-0128 149 A1 US 6246355 B1 US 6522284 B2 US 65905 19 B2 US 6853327 B2 wo 0 1-46670 A2 wo 0 1-46670 A3 wo 0 1-7 1377 A1	03.07. 2001 03. 10 .2001 03.07. 2001 28.06. 2001 27.09. 2001 14.05. 2004 14.05. 2004 01. 11. 2001 10.07. 2003 12.06. 2001 18.02. 2003 08.07. 2003 08.02. 2005 28.06. 2001 27. 12 .2001 27.09. 2001