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**INTERNATIONAL SEARCH REPORT**

International Application No  
PCT/US 01/17706

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 G01N23/10

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)  
IPC 7 G01N

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 practical, search terms used)

EPO-Internal, PAJ, WPI Data, INSPEC, COMPENDEX

**C DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DD 270 978 A (ORGREB INST KRAFTWERKE) 16 August 1989 (1989-08-16) page 3; figure 1 ---	1,26
X	US 4 566 114 A (WATT JOHN S ET AL) 21 January 1986 (1986-01-21) claims 1-11; figure 4 ---	1,26
X	US 3 280 328 A (GIESKIENG DAVID H) 18 October 1966 (1966-10-18) column 4, line 3 - line 63; claims 1-4 ---	1,7,9,11
X	US 4 769 830 A (PETERSON RICHARD W ET AL) 6 September 1988 (1988-09-06) claims 1-13 ---	1,26
	-/--	

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/17706

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FAHAD A A: "A COMPUTER-CONTROLLED DUAL-GAMMA SCANNER FOR MEASUREMENT OF SOIL WATER CONTENT AND BULK DENSITY" , INTERNATIONAL JOURNAL OF RADIATION APPLICATIONS AND INSTRUMENTATION PART A: APPLIED RADIATION AND ISOTOPEs, PERGAMON PRESS LTD., EXETER, GB, VOL. PART A, 40, NR. 4, PAGE(S) 340-342 XPO00066446 page 340 -page 342 ----	1
A	GB 1 421 755 A (BRITISH STEEL CORP) 21 January 1976 (1976-01-21) claims 1-12 ----	1
A	US 4 949 365 A (KOIKE KIYOSHI ET AL) 14 August 1990 (1990-08-14) claims 1-11 ----	1
A	PATENT ABSTRACTS OF JAPAN vol. 017, no. 509 (P-1612), 13 September 1993 (1993-09-13) & JP 05 133874 A (KENICHI HASEGAWA;OTHERS: 01), 28 May 1993 (1993-05-28) abstract ----	
A	PATENT ABSTRACTS OF JAPAN vol. 017, no. 149 (P-1509), 24 March 1993 (1993-03-24) & JP 04 319644 A (KENICHI HASEGAWA;OTHERS: 01), 10 November 1992 (1992-11-10) ----	
A	US 5 696 806 A (GRODZINS LEE ET AL) 9 December 1997 (1997-12-09) claims 1,11 ----	1,26
A	US 4 525 854 A (MOLBERT JOHN L ET AL) 25 June 1985 (1985-06-25) claim 1 ----	1
A	US 4 814 611 A (MOAKE GORDON L) 21 March 1989 (1989-03-21) ----	
A	US 4 200 792 A (FANGER HANS-ULRICH ET AL) 29 April 1980 (1980-04-29) ----	
A	US 4 820 919 A (BERG FLEMMING ET AL) 11 April 1989 (1989-04-11) ----	
A	DD 265 696 A (ORGREB INST KRAFTWERKE) 8 March 1989 (1989-03-08) -----	

# INTERNATIONAL SEARCH REPORT

Information on patent family members

In. tional Application No

PCT/US 01/17706

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DD 270978	A	16-08-1989 DD 270978 A1	16-08-1989
US 4566114	A	21-01-1986 NONE	
US 3280328	A	18-10-1966 GB 1059287 A	15-02-1967
US 4769830	A	06-09-1988 NONE	
GB 1421755	A	21-01-1976 NONE	
US 4949365	A	14-08-1990 JP 62110141 A DE 3638325 A1	21-05-1987 21-05-1987
JP 05133874	A	28-05-1993 NONE	
JP 04319644	A	10-11-1992 NONE	
US 5696806	A	09-12-1997 NONE	
US 4525854	A	25-06-1985 AT 40750 T AU 557007 B2 AU 2598684 A CA 1219970 A1 DE 3476698 D1 EP 0120676 A2 ES 531211 D0 ES 8607546 A1 IL 71299 A JP 1637681 C JP 2047697 B JP 59218941 A NZ 207628 A ZA 8402056 A	15-02-1989 27-11-1986 27-09-1984 31-03-1987 16-03-1989 03-10-1984 01-06-1986 01-11-1986 15-11-1988 31-01-1992 22-10-1990 10-12-1984 29-02-1988 31-10-1984
US 4814611	A	21-03-1989 NONE	
US 4200792	A	29-04-1980 DE 2622175 A1 CA 1088679 A1 FR 2352297 A1 GB 1539316 A JP 1435945 C JP 53010492 A JP 62033544 B	24-11-1977 28-10-1980 16-12-1977 31-01-1979 25-04-1988 30-01-1978 21-07-1987
US 4820919	A	11-04-1989 DK 237785 A CA 1274321 A1 DE 3616520 A1 FI 862241 A ,B, FR 2582810 A1 GB 2178527 A ,B IT 1204875 B JP 62012835 A NO 862101 A ,B, SE 465336 B SE 8602406 A	29-11-1986 18-09-1990 04-12-1986 29-11-1986 05-12-1986 11-02-1987 10-03-1989 21-01-1987 01-12-1986 26-08-1991 29-11-1986
DD 265696	A	08-03-1989 DD 265696 A1	08-03-1989