

**CPC****COOPERATIVE PATENT CLASSIFICATION****G01V**

**GEOFYSICS ; GRAVITATIONAL MEASUREMENTS ; DETECTING MASSES OR OBJECTS** ( detecting or locating foreign bodies for diagnostic, surgical or person-identification purposes [A61B](#) ; means for indicating the location of accidentally buried, e.g. snow-buried persons [A63B 29/02](#) ; investigating or analysing earth materials by determining their chemical or physical properties [G01N](#) ; measuring electric or magnetic variables in general, other than direction or magnitude of the earth's field [G01R](#) ; electronic or nuclear magnetic resonance arrangements [G01R 33/20](#) ; radar, sonar or analogous methods in general, detecting masses or objects involving these methods [G01S](#) )

**NOTE**

In this subclass, the geophysical methods apply both to the earth and to other celestial objects, e.g. planets.

Attention is drawn to the Notes following the title of class [G01](#) .

**WARNING**

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[G01V 3/11](#) covered by [G01V 3/10](#) B, [G01V 3/10](#) C

**Guidance heading:****G01V 1/00**

**Seismology ; Seismic or acoustic prospecting or detecting**

**NOTE**

Groups [G01V 1/44](#) to [G01V 1/52](#) take precedence over groups [G01V 1/001](#) to [G01V 1/393](#) [G01V 1/42](#)

**WARNING**

Group [G01V 1/159](#) does not correspond to former or current IPC groups.  
Concordance ECLA:IPC for this group is as follows: - [G01V 1/159](#) : [G01V 1/02](#)

**G01V 1/001**

- . { Acoustic presence detection ( measurement of sonic vibrations [G01H](#) ; alarm systems [G08B](#) ) }

**G01V 1/003**

- . { Seismic data acquisition in general, e.g. survey design ( [G01V 1/3808](#) , [G01V 1/42](#) takes precedence ) }

**G01V 1/005**

- .. { with exploration systems emitting special signals, e.g. frequency swept signals, pulse sequences or slip sweep arrangements }

**G01V 1/006**

- .. { generating single signals by using more than one generator, e.g. beam steering or focussing arrays ( [G01V 1/13](#) , [G01V 1/3861](#) takes precedence ) }

- G01V 1/008 . { [Earthquake measurement or prediction \( event detection for microseismic events G01V 1/288 \)](#) }
- G01V 1/02 . Generating seismic energy ( { [G01V 1/003 takes precedence](#) } ; [blasting in general F42](#) ; [nuclear explosives G21J](#) )
- G01V 1/04 . . . Details
- G01V 1/047 . . . Arrangements for coupling the generator to the ground
- G01V 1/0475 . . . . { [for controlling "Ground Force"](#) }
- G01V 1/053 . . . . for generating transverse waves
- G01V 1/06 . . . Ignition devices ( [G01V 1/393 takes precedence](#) )
- G01V 1/08 . . . . involving time-delay devices
- G01V 1/09 . . . Transporting arrangements, e.g. on vehicles ( [G01V 1/38 takes precedence](#) )
- G01V 1/104 . . using explosive charges ( [G01V 1/157 takes precedence](#) )
- G01V 1/108 . . . by deforming or displacing surfaces of enclosures
- G01V 1/112 . . . . for use on the surface of the earth
- G01V 1/116 . . . where pressurised combustion gases escape from the generator in a pulsating manner, e.g. for generating bursts
- G01V 1/13 . . . Arrangements or disposition of charges to produce a desired pattern in space or time
- G01V 1/133 . . using fluidic driving means, e.g. highly pressurised fluids; { [using implosion](#) } ( [G01V 1/104 takes precedence](#) )
- G01V 1/135 . . . by deforming or displacing surfaces of enclosures { , e.g. by [hydraulically driven vibroseis™](#) }
- G01V 1/137 . . . which fluid escapes from the generator in a pulsating manner, e.g. for generating bursts { , [airguns](#) }
- G01V 1/143 . . using mechanical driving means { e.g. [motor driven shaft](#) } ( [G01V 1/104](#) , [G01V 1/133 take precedence](#) )
- G01V 1/145 . . . by deforming or displacing surfaces { , e.g. by [mechanically driven vibroseis™](#) }
- G01V 1/147 . . . using impact of dropping masses
- G01V 1/153 . . . using rotary unbalanced masses
- G01V 1/155 . . . using reciprocating masses
- G01V 1/157 . . using spark discharges ; using exploding wires ( [spark gaps](#), { [non-enclosed discharge apparatus](#), not otherwise provided for [H01T](#) } )
- G01V 1/159 . . { [using piezoelectric or magnetostrictive driving means \( generating mechanical vibrations by using piezoelectric or magnetostrictive effect in general, \[B06B 1/06\]\(#\) , \[B06B 1/08\]\(#\) \)](#) }
- G01V 1/16 . . Receiving elements for seismic signals ( [electromechanical transducers H04R](#) ) ; Arrangements or adaptations of receiving elements
- G01V 1/162 . . . { [Details](#) }
- G01V 1/164 . . . { [Circuits therefore](#) }
- G01V 1/166 . . . { [Arrangements for coupling receivers to the ground](#) }
- G01V 1/168 . . { [Deployment of receiver elements \( \[G01V 1/3843 takes precedence\]\(#\) \)](#) }
- G01V 1/18 . . Receiving elements, e.g. seismometer, geophone { or [torque detectors](#), for [localised single point measurements](#) }
- G01V 1/181 . . . { [Geophones](#) }

G01V 1/182	....	{ with moving coil }
G01V 1/183	....	{ with moving magnet }
G01V 1/184	....	{ Multi-component geophones }
G01V 1/185	....	{ with adaptable orientation, e.g. gimballed }
G01V 1/186	...	{ Hydrophones }
G01V 1/187	....	{ Direction-sensitive hydrophones }
G01V 1/188	....	{ with pressure compensating means }
G01V 1/189	...	{ Combinations of different types of receiving elements }
G01V 1/20	..	Arrangements of receiving elements, e.g. geophone pattern
G01V 1/201	...	{ Constructional details of seismic cables, e.g. streamers ( integrated optoseismic systems <a href="#">G01V 1/226</a> ; line connectors in general <a href="#">H01R</a> , transducer mountings in general <a href="#">G10K 11/004</a> ) }
G01V 1/202	....	{ Connectors, e.g. for force, signal or power }
G01V 1/208	....	{ having a continuous structure ( detecting traffic <a href="#">G08G</a> , transducers in general <a href="#">G10K</a> ) }
G01V 1/22	.	Transmitting seismic signals to recording or processing apparatus ( signal transmitting systems in general <a href="#">G08C</a> ; transmission systems in general <a href="#">H04B</a> )
G01V 1/223	..	{ Radioseismic systems }
G01V 1/226	..	{ Optoseismic systems }
G01V 1/24	.	Recording seismic data ( transforming one recording into another <a href="#">G01V 1/32</a> ; recording measured values in general <a href="#">G01D</a> )
G01V 1/242	..	{ Seismographs }
G01V 1/245	..	{ Amplitude control for seismic recording ( control of amplification in general <a href="#">H03G</a> ) }
G01V 1/247	..	{ Digital recording of seismic data, e.g. in acquisition units or nodes }
G01V 1/26	..	Reference-signal-transmitting devices, e.g. indicating moment of firing of shot
G01V 1/28	.	Processing seismic data, e.g. analysis, for interpretation, for correction ( <a href="#">G01V 1/48</a> takes precedence )
G01V 1/282	..	{ Application of seismic models, synthetic seismograms }
G01V 1/284	..	{ Application of the shear wave component and/or several components of the seismic signal }
G01V 1/286	...	{ Mode conversion }
G01V 1/288	..	{ Event detection in seismic signals, e.g. microseismics } ( earthquakes <a href="#">G01V 1/008</a> ; <a href="#">G01V 1/36</a> takes precedence )
G01V 1/30	..	Analysis ( <a href="#">G01V 1/50</a> takes precedence )
G01V 1/301	...	{ for determining seismic cross-sections or geostructures }
G01V 1/302	....	{ in 3D data cubes }
G01V 1/303	...	{ for determining velocity profiles or travel times }
G01V 1/305	....	{ Travel times }
G01V 1/306	...	{ for determining physical properties of the subsurface, e.g. impedance, porosity or attenuation profiles }
G01V 1/307	...	{ for determining seismic attributes, e.g. amplitude, instantaneous phase or frequency, reflection strength or polarity }
G01V 1/308	...	{ Time lapse or 4D effects, e.g. production related effects to the formation ( fluid

- flow per se E21B47 ) }
- G01V 1/32      ..      Transforming one recording into another { or one representation into another }
  - G01V 1/325     ...      { Transforming one representation into another }
  - G01V 1/34      ..      Displaying seismic recordings { or visualisation of seismic data or attributes }
  - G01V 1/345     ...      { Visualisation of seismic data or attributes, e.g. in 3D cubes }
  - G01V 1/36      ..      Effecting static or dynamic corrections on records, e.g. correcting spread ;  
Correlating seismic signals ; Eliminating effects of unwanted energy
  - G01V 1/362     ...      { Effecting static or dynamic corrections; Stacking }
  - G01V 1/364     ...      { Seismic filtering ( [G01V 1/37](#) takes precedence ) }
  - G01V 1/366     ....      { by correlation of seismic signals }
  - G01V 1/368     ....      { Inverse filtering }
  - G01V 1/37      ..      specially adapted for seismic systems using continuous agitation of the ground,  
{ e.g. using pulse compression of frequency swept signals for enhancement of  
received signals }
  - G01V 1/375     ....      { Correlating received seismic signals with the emitted source signal }
  
  - G01V 1/38      .      specially adapted for water-covered areas ( [G01V 1/28](#) , { [G01V 1/42](#) } take  
precedence ) ]
  - G01V 1/3808    ..      { Seismic data acquisition, e.g. survey design ( in general [G01V 1/003](#) ) }
  - G01V 1/3817    ..      { Positioning of seismic devices }
  - G01V 1/3826    ...      { dynamic steering, e.g. by paravanes or birds }
  - G01V 1/3835    ...      { measuring position, e.g. by GPS or acoustically }
  - G01V 1/3843    ..      { Deployment of seismic devices, e.g. of streamers ( equipment for marine  
deployment in general [B63B](#) ) }
  - G01V 1/3852    ...      { to the seabed }
  - G01V 1/3861    ..      { control of source arrays, e.g. for far field control }
  - G01V 1/387     ..      Reducing secondary bubble pulse, i.e. reducing the detected signals resulting from  
the generation and release of gas bubbles after the primary explosion
  - G01V 1/393     ..      Means for loading explosive underwater charges, e.g. combined with ignition  
devices
  
  - G01V 1/40      .      specially adapted for well-logging
  - G01V 1/42      ..      using generators in one well and receivers elsewhere or vice-versa ( [G01V 1/52](#)  
takes precedence )
  - G01V 1/44      ..      using generators and receivers in the same well ( [G01V 1/52](#) takes precedence )
  - G01V 1/46      ...      Data acquisition
  - G01V 1/48      ...      Processing data
  - G01V 1/50      ...      Analysing data
  - G01V 1/52      ..      Structural details
  - G01V 1/523     ...      { Damping devices }
  
  - G01V 3/00**      **Electric or magnetic prospecting or detecting ( by optical means [G01V 8/00](#) ) ;  
Measuring magnetic field characteristics of the earth, e.g. declination, deviation (**  
**for navigation, for surveying [G01C](#) ; { measuring direction or magnitude of magnetic fields**  
**or magnetic flux in general [G01R 33/02](#) } )**
  
  - G01V 3/02      .      operating with propagation of electric current

- G01V 3/04 . . using dc
- G01V 3/06 . . using ac
- G01V 3/08 . operating with magnetic or electric fields produced or modified by objects or geological structures or by detecting devices ( with electromagnetic waves [G01V 3/12](#) ; measuring the magnetic field characteristics of the earth [G01V 3/40](#) )
- G01V 3/081 . . { the magnetic field is produced by the objects or geological structures ( characterised by the method of magnetic field measurement [G01R 33/00](#) ) }
- G01V 3/082 . . { operating with fields produced by spontaneous potentials, e.g. electrochemical or produced by telluric currents ( [G01V 3/26](#) takes precedence ) }
- G01V 3/083 . . { Controlled source electromagnetic [CSEM] surveying }
- G01V 3/087 . . { the earth magnetic field being modified by the objects or geological structures }
- G01V 3/088 . . { operating with electric fields ( [G01V 3/082](#) takes precedence ) }
- G01V 3/10 . . using induction coils
- G01V 3/101 . . . { by measuring the impedance of the search coil; by measuring features of a resonant circuit comprising the search coil ( measuring impedance or characteristics derived therefrom [G01R 27/00](#) , e.g. quality factor [G01R 27/26](#) ) }
- G01V 3/102 . . . . { by measuring amplitude }
- G01V 3/104 . . . { using several coupled or uncoupled coils ( [G01V 3/101](#) takes precedence ) }
- G01V 3/105 . . . . { forming directly coupled primary and secondary coils or loops }
- G01V 3/107 . . . . . { using compensating coil or loop arrangements }
- G01V 3/108 . . . . { the emitter and the receiver coils or loops being uncoupled by positioning them perpendicularly to each other }
- G01V 3/12 . operating with electromagnetic waves { ( operating with millimetre waves [G01V 8/005](#) ) }
- G01V 3/14 . operating with electron or nuclear magnetic resonance
- G01V 3/15 . specially adapted for use during transport, e.g. by a person, vehicle or boat
- G01V 3/16 . . specially adapted for use from aircraft ( [G01V 3/165](#) to [G01V 3/175](#) take precedence )
- G01V 3/165 . . operating with magnetic or electric fields produced or modified by the object or by the detecting device ( with electromagnetic waves [G01V 3/17](#) )
- G01V 3/17 . . operating with electromagnetic waves { ( operating with millimetre waves [G01V 8/005](#) ) }
- G01V 3/175 . . operating with electron or nuclear magnetic resonance
- G01V 3/18 . specially adapted for well-logging
- G01V 3/20 . . operating with propagation of electric current
- G01V 3/22 . . . using dc
- G01V 3/24 . . . using ac
- G01V 3/26 . . operating with magnetic or electric fields produced or modified either by the surrounding earth formation or by the detecting device ( with electromagnetic waves [G01V 3/30](#) )
- G01V 3/265 . . . { Operating with fields produced by spontaneous potentials, e.g. electrochemicals or produced by telluric currents }
- G01V 3/28 . . . using induction coils

- G01V 3/30 . . operating with electromagnetic waves
- G01V 3/32 . . operating with electron or nuclear magnetic resonance
- G01V 3/34 . . Transmitting data to recording or processing apparatus ; Recording data
- G01V 3/36 . Recording data ( [G01V 3/34](#) takes precedence )
- G01V 3/38 . Processing data, e.g. for analysis, for interpretation, for correction ( [computing in general G06](#) )
- G01V 3/40 . specially adapted for measuring magnetic field characteristics of the earth

**G01V 5/00** **Prospecting or detecting by the use of nuclear radiation, e.g. of natural or induced radioactivity** ( [determining the properties of materials G01N](#) ; [measuring nuclear radiation G01T](#) )

### **WARNING**

Pending reclassification, the subgroups of this group are not complete; see also this group

- G01V 5/0008 . { [Detecting hidden objects, e.g. weapons, explosives \( sorting of materials or articles according to radioactive properties B07C 5/342 ; investigating or analysing materials by the use of wave or particle radiation G01N 23/00 \)](#) }
- G01V 5/0016 . . { [Active interrogation, i.e. using an external radiation source, e.g. using pulsed, continuous or cosmic rays](#) }
- G01V 5/0025 . . . { [Measuring scattered radiation](#) }
- G01V 5/0033 . . . { [Mixed interrogation beams, e.g. using more than one type of radiation beam](#) }
- G01V 5/0041 . . . { [Multiple energy techniques using one type of radiation, e.g. X-rays of different energies \( multi-beam applications, e.g. X-rays and neutrons G01V 5/0033 ; spectroscopic applications G01V 5/0016 \)](#) }
- G01V 5/005 . . . { [using Tomography, e.g. CT or SPECT \( detector details in CT applications G01T 1/2985 \)](#) }
- G01V 5/0058 . . . { [using stereoscopic means](#) }
- G01V 5/0066 . . . { [having relative motion between the source, detector and object other than by conveyor \( G01V 5/005 takes precedence \)](#) }
- G01V 5/0075 . . { [Passive interrogation \( for hand, feet or portals G01T 1/167 ; for contaminated surface areas G01T 1/169 \)](#) }
- G01V 5/0083 . . { [utilizing a network, e.g. a remote expert, accessing remote data or the like](#) }
- G01V 5/0091 . . { [detecting special nuclear material \[SNM\], e.g. Uranium-235, Uranium-233 or Plutonium-239](#) }
- G01V 5/02 . specially adapted for surface logging, e.g. from aircraft
- G01V 5/025 . . { [specially adapted for use from aircraft](#) }
- G01V 5/04 . specially adapted for well-logging
- G01V 5/045 . . { [Transmitting data to recording or processing apparatus; Recording data](#) }
- G01V 5/06 . . for detecting naturally radioactive minerals
- G01V 5/08 . . using primary nuclear radiation sources or X-rays { [e.g. for inducing radioactivity; investigating or analysing materials by the use of wave or particle radiation, e.g.](#)

- X-rays, neutrons [G01N 23/00](#) }
- G01V 5/085 . . . { using another radioactive source }
  - G01V 5/10 . . . using neutron sources { neutron generating tubes [H05H 5/00](#) ; neutron sources using isotopes [G21G 4/00](#) }
  - G01V 5/101 . . . . { and detecting the secondary Y-rays produced in the surrounding layers of the bore hole }
  - G01V 5/102 . . . . . { the neutron source being of the pulsed type }
  - G01V 5/104 . . . . { and detecting secondary Y-rays as well as reflected or back-scattered neutrons }
  - G01V 5/105 . . . . . { the neutron source being of the pulsed type }
  - G01V 5/107 . . . . { and detecting reflected or back-scattered neutrons }
  - G01V 5/108 . . . . . { the neutron source being of the pulsed type }
  - G01V 5/12 . . . using gamma or X-ray sources { gamma sources using isotopes [G21G 4/00](#) ; X-ray tubes [H01J 35/00](#) }
  - G01V 5/125 . . . . { and detecting the secondary gamma- or X-rays in different places along the bore hole }
  - G01V 5/14 . . . using a combination of several sources, e.g. a neutron and a gamma source
  - G01V 5/145 . . . . { using a neutron source combined with a gamma- or X-ray source }

## **G01V 7/00      Measuring gravitational fields or waves ; Gravimetric prospecting or detecting**

- G01V 7/005 . { using a resonating body or device, e.g. string ( [G01V 7/08](#) to [G01V 7/12](#) take precedence; measuring resonant frequency of mechanical vibrations [G01H 13/00](#) ; measuring frequency per se [G01R 23/00](#) ) }
- G01V 7/02 . Details
- G01V 7/04 . . Electric, photoelectric, or magnetic indicating or recording means
- G01V 7/06 . . Analysis or interpretation of gravimetric records
- G01V 7/08 . using balances ( [balances in general G01G](#) )
- G01V 7/10 . . using torsion balances, e.g. Eötvös balance
- G01V 7/12 . using pendulums
- G01V 7/14 . using free-fall time
- G01V 7/16 . specially adapted for use on moving platforms, e.g. ship, aircraft

## **G01V 8/00      Prospecting or detecting by optical means ( measurement of characteristics of light [G01J](#) ; optical scanning systems [G02B 26/10](#) ; discharge tubes detecting the presence of radiation [H01J 40/00](#) , [H01J 47/00](#) ; semiconductor devices sensitive to light [H01L 31/00](#) )**

### **NOTE**

This group covers the use of {millimetre waves, } infra-red, visible or ultra-violet light.

- G01V 8/005 . { operating with millimetre waves, e.g. measuring the black body radiation }



- G01V 8/02 . Prospecting
- G01V 8/10 . Detecting, e.g. by using light barriers ( by reflection from the object [G01S 17/00](#) ; counting of objects carried by a conveyer [G06M 7/00](#) ; signalling or calling arrangements [G08B](#) ; detecting movement of traffic to be counted or controlled [G08G 1/01](#) ; proximity switches [H03K 17/945](#) , [H03K 17/965](#) )
- G01V 8/12 . . . using one transmitter and one receiver
- G01V 8/14 . . . using reflectors
- G01V 8/16 . . . using optical fibres
- G01V 8/18 . . . using mechanical scanning systems
- G01V 8/20 . . using multiple transmitters or receivers
- G01V 8/22 . . . using reflectors
- G01V 8/24 . . . using optical fibres
- G01V 8/26 . . . using mechanical scanning systems
- G01V 9/00** **Prospecting or detecting by methods not provided for in groups [G01V 1/00](#) to [G01V 8/00](#)**
- G01V 9/002 . { using fields or radiation detectable only by persons susceptible therefor, e.g. radio-esthesis, dowsing }
- G01V 9/005 . { by thermal methods, e.g. after generation of heat by chemical reactions }
- G01V 9/007 . { by detecting gases or particles representative of underground layers at or near the surface ( analysing earth materials [G01N 33/24](#) ; analysing gases per se [G01N](#) ) }
- G01V 9/02 . Determining existence or flow of underground water
- G01V 11/00** **prospecting or detecting by methods combining techniques covered by two or more of main groups [G01V 1/00](#) to [G01V 9/00](#)**
- G01V 11/002 . { Details, e.g. power supply systems for logging instruments, transmitting or recording data, specially adapted for well logging, also if the prospecting method is irrelevant ( means for transmitting well survey signals [E21B 47/12](#) ; signal transmission systems in general [G08C](#) ; transmission in general [H04B](#) ) }
- G01V 11/005 . . { Devices for positioning logging sondes with respect to the borehole wall ( centralising devices for drilling rods or pipes [E21B 17/10](#) ; setting or locking tools in boreholes [E21B 23/00](#) ; Locating objects in boreholes [E21B 47/09](#) ) }
- G01V 11/007 . { using the seismo-electric effect }
- G01V 13/00** **Manufacturing, calibrating, cleaning, or repairing instruments or devices covered by the preceding groups**
- G01V 15/00** **Tags attached to, or associated with, an object, in order to enable detection of the object ( record carriers for use with machines [G06K 19/00](#) ; signs, labels [G09F](#) )**
- G01V 99/00** **Subject matter not provided for in other groups of this subclass**



G01V 99/005 . { Geomodels or geomodelling, not related to particular measurements }

#### Guidance heading:

**G01V 2001/00 Seismology ; Seismic or acoustic prospecting or detecting**

#### **NOTE**

Groups [G01V 1/44](#) to [G01V 1/52](#) take precedence over groups [G01V 1/001](#) to [G01V 1/393](#) [G01V 1/42](#)

#### **WARNING**

Group [G01V 1/159](#) does not correspond to former or current IPC groups.  
Concordance ECLA:IPC for this group is as follows: - [G01V 1/159](#) : [G01V 1/02](#)

- G01V 2001/16 . Receiving elements for seismic signals ( [electromechanical transducers H04R](#) ) ;  
Arrangements or adaptations of receiving elements
- G01V 2001/20 . . Arrangements of receiving elements, e.g. geophone pattern
- G01V 2001/201 . . . { [Constructional details of seismic cables, e.g. streamers \( integrated  
optoseismic systems G01V 1/226 ; line connectors in general H01R ,  
transducer mountings in general G10K 11/004 \)](#) }
- G01V 2001/204 . . . . Reinforcements, e.g. by tensioning cables
- G01V 2001/205 . . . . Internal damping
- G01V 2001/207 . . . . Buoyancy
- G01V 2001/40 . specially adapted for well-logging
- G01V 2001/52 . . Structural details
- G01V 2001/526 . . . Mounting of transducers
- G01V 2003/00 Electric or magnetic prospecting or detecting ( by optical means [G01V 8/00](#) ) ;  
Measuring magnetic field characteristics of the earth, e.g. declination, deviation (   
[for navigation, for surveying G01C](#) ; { measuring direction or magnitude of magnetic fields  
or magnetic flux in general [G01R 33/02](#) } )**
- G01V 2003/08 . operating with magnetic or electric fields produced or modified by objects or geological  
structures or by detecting devices ( [with electromagnetic waves G01V 3/12 ;  
measuring the magnetic field characteristics of the earth G01V 3/40](#) )
- G01V 2003/083 . . { [Controlled source electromagnetic \[CSEM\] surveying](#) }
- G01V 2003/084 . . . Sources
- G01V 2003/085 . . . Receivers
- G01V 2003/086 . . . Processing

#### Guidance heading:

**G01V 2200/00 Details of seismic or acoustic prospecting or detecting in general**

G01V 2200/10	. Miscellaneous details
G01V 2200/12	.. Clock synchronization-related issues
G01V 2200/14	.. Quality control
G01V 2200/16	.. Measure-while-drilling or logging-while-drilling

#### Guidance heading:

#### **G01V 2210/00 Details of seismic processing or analysis**

G01V 2210/10	. Aspects of acoustic signal generation or detection
G01V 2210/12	.. Signal generation
G01V 2210/121	... Active source
G01V 2210/1212	.... Shot
G01V 2210/1214	.... Continuous
G01V 2210/1216	.... Drilling-related
G01V 2210/123	... Passive source, e.g. micro-seismics
G01V 2210/1232	.... Earthquakes
G01V 2210/1234	.... Hydrocarbon reservoir, e.g. spontaneous or induced fracturing
G01V 2210/1236	.... Acoustic daylight, e.g. cultural noise
G01V 2210/125	... Virtual source
G01V 2210/127	... Cooperating multiple sources
G01V 2210/129	... Source location
G01V 2210/1291	.... Air
G01V 2210/1293	.... Sea
G01V 2210/1295	.... Land surface
G01V 2210/1297	.... Sea bed
G01V 2210/1299	.... Subsurface, e.g. in borehole or below weathering layer or mud line
G01V 2210/14	.. Signal detection
G01V 2210/142	... Receiver location
G01V 2210/1421	.... Air
G01V 2210/1423	.... Sea
G01V 2210/1425	.... Land surface
G01V 2210/1427	.... Sea bed
G01V 2210/1429	.... Subsurface, e.g. in borehole or below weathering layer or mud line
G01V 2210/144	... with functionally associated receivers, e.g. hydrophone and geophone pairs
G01V 2210/16	.. Survey configurations
G01V 2210/161	... Vertical seismic profiling [VSP]
G01V 2210/163	... Cross-well
G01V 2210/165	... Wide azimuth
G01V 2210/167	... Very long offset
G01V 2210/169	... Sparse arrays

- G01V 2210/20 . Trace signal pre-filtering to select, remove or transform specific events or signal components, i.e. trace-in/trace-out ( [removing noise G01V 2210/32](#) )
- G01V 2210/21 .. Frequency-domain filtering, e.g. band pass
- G01V 2210/22 .. Time-domain filtering
- G01V 2210/23 .. Wavelet filtering
- G01V 2210/24 .. Multi-trace filtering
- G01V 2210/242 ... F-k filtering, e.g. ground roll
- G01V 2210/244 ... Radon transform
- G01V 2210/25 .. Transform filter for merging or comparing traces from different surveys
- G01V 2210/26 .. Modulation or demodulation, e.g. for continuous sources
- G01V 2210/27 .. Other pre-filtering
  
- G01V 2210/30 . Noise handling ( [trace signal pre-filtering G01V 2210/20](#) )
- G01V 2210/32 .. Noise reduction
- G01V 2210/322 ... Trace stacking
- G01V 2210/324 ... Filtering
- G01V 2210/3242 .... Flow noise
- G01V 2210/3244 .... Cultural noise
- G01V 2210/3246 .... Coherent noise, e.g. spatially coherent or predictable
- G01V 2210/3248 .... Incoherent noise, e.g. white noise
- G01V 2210/34 .. Noise estimation ( [quality control G01V 2200/14](#) )
- G01V 2210/36 .. Noise recycling, i.e. retrieving non-seismic information from noise
- G01V 2210/38 .. Noise characterisation or classification
  
- G01V 2210/40 . Transforming data representation ( [for pre-filtering purposes G01V 2210/20](#) )
- G01V 2210/41 .. Arrival times, e.g. of P or S wave or first break
- G01V 2210/42 .. Waveform, i.e. using raw or pre-filtered trace data
- G01V 2210/43 .. Spectral
- G01V 2210/44 .. F-k domain
- G01V 2210/45 .. F-x or F-xy domain
- G01V 2210/46 .. Radon transform
- G01V 2210/47 .. Slowness, e.g. tau-pi
- G01V 2210/48 .. Other transforms
  
- G01V 2210/50 . Corrections or adjustments related to wave propagation ( [noise handling G01V 2210/30](#) )
- G01V 2210/51 .. Migration
- G01V 2210/512 ... Pre-stack
- G01V 2210/514 ... Post-stack
- G01V 2210/52 .. Move-out correction
- G01V 2210/522 ... Dip move-out [DMO]
- G01V 2210/53 .. Statics correction, e.g. weathering layer or transformation to a datum
- G01V 2210/532 ... Dynamic changes in statics, e.g. sea waves or tidal influences

G01V 2210/54	..	Borehole-related corrections
G01V 2210/542	...	Casing
G01V 2210/544	...	Invasion zone
G01V 2210/55	..	Array focusing ; Phased arrays
G01V 2210/56	..	De-ghosting ; Reverberation compensation
G01V 2210/57	..	Trace interpolation or extrapolation, e.g. for virtual receiver ; Anti-aliasing for missing receivers
G01V 2210/58	..	Media-related
G01V 2210/582	...	Dispersion
G01V 2210/584	...	Attenuation
G01V 2210/586	...	Anisotropic media
G01V 2210/588	...	Non-linear media
G01V 2210/59	..	Other corrections
G01V 2210/60	.	Analysis
G01V 2210/61	..	Analysis by combining or comparing a seismic data set with other data
G01V 2210/612	...	Previously recorded data, e.g. time-lapse or 4D
G01V 2210/6122	....	Tracking reservoir changes over time, e.g. due to production
G01V 2210/6124	.....	Subsidence, i.e. upwards or downwards
G01V 2210/614	...	Synthetically generated data
G01V 2210/616	...	Data from specific type of measurement
G01V 2210/6161	....	Seismic or acoustic, e.g. land or sea measurements
G01V 2210/6163	....	Electromagnetic
G01V 2210/6165	....	Gravitational
G01V 2210/6167	....	Nuclear
G01V 2210/6169	....	using well-logging
G01V 2210/62	..	Physical property of subsurface
G01V 2210/622	...	Velocity, density or impedance
G01V 2210/6222	....	Velocity ; travel time
G01V 2210/6224	....	Density
G01V 2210/6226	....	Impedance
G01V 2210/624	...	Reservoir parameters
G01V 2210/6242	....	Elastic parameters, e.g. Young, Lam? or Poisson
G01V 2210/6244	....	Porosity
G01V 2210/6246	....	Permeability
G01V 2210/6248	....	Pore pressure
G01V 2210/626	...	with anisotropy
G01V 2210/63	..	Seismic attributes, e.g. amplitude, polarity, instant phase
G01V 2210/632	...	Amplitude variation versus offset or angle of incidence [AVA, AVO, AVI]
G01V 2210/64	..	Geostructures, e.g. in 3D data cubes
G01V 2210/641	...	Continuity of geobodies
G01V 2210/642	...	Faults
G01V 2210/643	...	Horizon tracking

G01V 2210/644	...	Connectivity, e.g. for fluid movement
G01V 2210/645	...	Fluid contacts
G01V 2210/646	...	Fractures
G01V 2210/647	...	Gas hydrates
G01V 2210/65	..	Source localisation, e.g. faults, hypocenters or reservoirs
G01V 2210/66	..	Subsurface modeling
G01V 2210/661	...	Model from sedimentation process modeling, e.g. from first principles
G01V 2210/663	...	Modeling production-induced effects
G01V 2210/665	...	using geostatistical modeling
G01V 2210/6652	....	Kriging
G01V 2210/667	...	Determining confidence or uncertainty in parameters
G01V 2210/67	..	Wave propagation modeling
G01V 2210/671	...	Raytracing
G01V 2210/673	...	Finite-element ; Finite-difference
G01V 2210/675	...	Wave equation ; Green's functions
G01V 2210/677	...	Spectral ; Pseudo-spectral
G01V 2210/679	...	Reverse-time modeling or coalescence modelling, i.e. starting from receivers
G01V 2210/70	.	Other details related to processing
G01V 2210/72	..	Real-time processing
G01V 2210/74	..	Visualisation of seismic data