



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

Centrale Acquisti

## DECRETO DEL DIRIGENTE

GCPC055\_3\_2022 Decreto di affidamento \_ Servizio di monitoraggio del ghiacciaio della Marmolada presso Canazei (Dolomiti) mediante tecnica sperimentale radar doppler \_ nell'ambito dell'Accordo Quadro G055\_2020 per la fornitura di prodotti e servizi di telerilevamento tramite tecnologia radar doppler per attività di monitoraggio e allertamento in tempo reale relative a crolli in roccia, colate detritiche e altri fenomeni di dissesto a cinematica rapida CIG 85835899B7 Art. 54 D.Lgs 50/2016 CUP: B55F22000630001 - CIG DERIVATO 9350823F3C

*Il Dirigente,*

VISTO il d.lgs. 18 aprile 2016 n. 50 recante "Codice dei contratti" e ss.mm.ii.;

VISTO lo Statuto dell'Università degli Studi di Firenze;

VISTO il Regolamento di Amministrazione, Finanza e Contabilità dell'Università degli Studi di Firenze;

VISTO il decreto Direttore Generale n. 882/2022 prot. 138633 del 30/06/2022 di delega alla firma degli atti della Centrale Acquisti;

PREMESSO che il Centro per la Protezione Civile dell'Università degli Studi di Firenze ha stipulato con il Dipartimento della Protezione Civile della Presidenza del Consiglio dei Ministri un Accordo, Rep. 537/2022 Prot. n. 41387 del 23/02/2022, ai sensi dell'art. 15 della legge 7 agosto 1990, n. 241 e dell'art. 4 del D.lgs. 2 gennaio 2018, n.1, in data 15 febbraio 2022, con durata biennale, attraverso il quale è stato instaurato un rapporto di collaborazione e partnership, nell'ambito delle rispettive finalità istituzionali, per lo sviluppo della conoscenza e supporto tecnico scientifico per la valutazione degli scenari di pericolosità idrogeologica e vulcanica;

DATO ATTO che il sunnominato Dipartimento, dal 2005 ha continuativamente instaurato con il Centro di competenza dell'Università degli Studi di Firenze rapporti di collaborazione finalizzati alla previsione, valutazione e riduzione del rischio idrogeologico e vulcanico e più in generale dei rischi naturali acquisendo sinergicamente esperienze, know-how e alta specializzazione per il Servizio Nazionale della Protezione Civile;



VISTO la nota Prot. n. 145755 del 11/07/2022 del Dipartimento della Protezione Civile di attivazione del Centro per la Protezione Civile dell'Università degli Studi di Firenze, quale Centro di Competenza, in seguito al distacco di un seracco dalla calotta sommitale del ghiacciaio della Marmolada, sotto Punta Rocca, avvenuto il 3 luglio u.s., per il monitoraggio dell'area interessata dall'evento fino al 30 settembre 2022, al fine di individuare le cause del crollo e valutare il rischio residuo;

VISTA l'esigenza, rappresentata dal Centro per la Protezione Civile dell'Università degli Studi di Firenze, di attivazione del servizio di monitoraggio tramite tecnologia radar doppler per il controllo delle deformazioni del Seracco di Punta Rocca sul versante Nord della Marmolada in Canazei (TN);

CONSIDERATO che in data 2 marzo 2021 è stato stipulato un Accordo Quadro Rep. n. 184/2021 Prot. 83194 del 2/03/2021 con GEOPRAEVENT AG per l'affidamento della fornitura di prodotti e servizi di telerilevamento tramite tecnologia radar doppler per attività di monitoraggio e allertamento in tempo reale relative a crolli in roccia, colate detritiche e altri fenomeni di dissesto a cinematica rapida CIG 85835899B7;

DATO ATTO che per ragioni di urgenza e di continuità delle prestazioni in oggetto, il presente affidamento comprende retroattivamente tutte le attività svolte dal 05 luglio 2022 e che il servizio avrà termine in data 30 settembre 2022;

VISTO l'ammontare del corrispettivo delle prestazioni richieste dal Centro per la Protezione Civile, determinato sulla base delle condizioni economiche offerte dall'affidataria dell'originario Accordo Quadro, pari a € 97.740,00, oltre iva di legge, e le prestazioni previste (documento di offerta n. OF1200210.01 del 29 luglio 2022, allegata);

VISTO l'art. 54, comma 3, del D.Lgs 50/2016, e acquisito il CIG derivato 9350823F3C identificativo del contratto applicativo dell'Accordo Quadro;

DATO ATTO che le verifiche in merito al permanere dei requisiti generali di contrattualizzazione dell'impresa affidataria sono in istruttoria, e che quindi l'efficacia del presente atto è subordinata al positivo esito delle stesse;



ciò premesso,

DECRETA

- a) di affidare all'impresa GEOPRAEVENT AG (CHE 316.829.922) con sede legale in Technoparkstrasse 1, 8005 Zurich, Switzerland, il servizio di “*monitoraggio del ghiacciaio della Marmolada presso Canazei (Dolomiti) mediante tecnica sperimentale radar doppler*”, con le specifiche dettagliate nel documento di offerta n. OF1200210.01 del 29 luglio 2022, (allegata) ai sensi dell'art. 54 del D.Lgs. n. 50/2016, nell'ambito dell'Accordo Quadro Rep. n. 184/2021 Prot. 83194 del 2/03/2021 G055\_2020, CIG 85835899B7, per l'importo previsto di 97.740,00, oltre IVA di legge;
- b) il rapporto, formalizzato mediante sottoscrizione del contratto applicativo dell'Accordo Quadro, è identificato con CIG derivato 9350823F3C e CUP B55F22000630001;
- c) di dare atto che l'importo di corrispettivo delle prestazioni, di € 97.740,00, oltre IVA di legge, trova copertura sul fondo: CASDPC\_2022-2024, capitolo "CO.04.01.02.01.08.14 “Altre spese per servizi”;
- d) di procedere alla pubblicazione del presente Decreto: all'Albo Ufficiale di Ateneo (<https://www.unifi.it/albo-ufficiale.html>) sul profilo web della Stazione Appaltante, sezione Bandi di gara, sulla Piattaforma SITAT SA Regione Toscana - Pubblicazione ai sensi art. 29 D.lgs 50/2016 e D. Lgs 33/2013.

Visto di regolarità contabile

Dott. Daniele Landi

IL DIRIGENTE

Dott. Massimo Benedetti

Allegato:

1. doc. OF1200210.01 del 29 luglio 2022

GEOPREVENT - part of Hexagon  
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Tel. +41 44 419 91 10  
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University of Florence  
Prof. Nicola Casagli  
Via G. La Pira n.4  
50121 Florence  
Italy

Zurich, July 29, 2022 / SW

## **Offer AVYX™ Avalanche Radar and IBIS-FM interferometric radar for Marmolada glacier**

**OF1200210.01**

Dear Sir or Madam,

We are happy to offer you a radar system for real-time detection of avalanches and an interferometric radar for monitoring of the Marmolada glacier near Canazei in the Dolomites. This offer is based on the agreement between the University of Florence and Geoprevent with the Prot.n. 0083194 of March 2, 2021.

### **AVYX™ long-range avalanche radar**

AVYX avalanche radar enables automatic, reliable detection of snow and ice avalanches in real-time in any weather, day or night. It allows to monitor large areas permanently at safe distance (5 km) with opening angles of up to 90° horizontally and 20° vertically. Dedicated GEOPREVENT algorithms ensure reliable detection of avalanche events of varying sizes independent of visibility conditions.

The avalanche radar detection system consists of the following components:

- **AVYX long-range avalanche radar** based on Doppler radar technology for real-time detection of avalanches at distances of up to 5 km
- **Anti-snow system** for automatic removal of snow on radar head
- **PTZ webcam** for automatic event images/videos and status images
- **System control** with onsite data processing for immediate alerting
- **Data transmission** via mobile phone network
- **GEOPREVENT online data portal** for data storage, visualization and archiving (e.g. event mapping and images)
- **24/7 system monitoring** to ensure reliable system functionality at all times
- **Alerting:** alarm system with connected audio-visual alarm horns
- **Power supply:** autonomous with methanol fuel cell and via 230 VAC, as available
- **Communication:** data communication via mobile phone network

## Interferometric radar IBIS-FM

Interferometric radar is a very accurate and reliable remote-sensing technology for the detection of surface deformation of glaciers or rock faces. Automatic data analysis with proprietary algorithms allows to determine sub-mm displacements over time periods of hours to months and identify rock instabilities at safe distance. Data processing is performed on our cloud servers with continuous data upload to the Geoprevent online data portal for authorized user access.

The interferometric radar was deployed in conjunction with the avalanche radar to increase the amount of available data for interpretation as well as the redundancy of the monitoring network in the initial phase of the emergency.

Technical specifications:

- **Measurement reliability:** Radar beams penetrate rain, fog, snowfall and can measure at day and during night.
- **Detection distance:** Up to 4.5 km.
- **Field of View:** Horizontal opening angle 80°, vertical opening angle 50°
- **Pixel size:** Horizontal 0.5 m, vertical 4.4 m (at 1 km distance).
- **Accuracy:** Sub-mm/month (SLYX® Slow Movement Analysis)
- **Alerting:** The radar scans at an interval of 15 to 60 min. Automatic alerting is not recommended with this device.
- **Installation:** A solid foundation is required for successful operation of the interferometric radar. The foundation is provided by the customer with dimensions by GEOPREVENT.

The radar can be autonomously powered with a methanol fuel cell or through grid power from the rifugio. Data is transmitted via mobile phone network.

## Radar location

The radar will be installed near the rifugio next to the gondola station. Due to the urgency of the installation, no coverage simulation was created. The coverage area is roughly marked on the event map in the data portal. Please note that the boundaries are not sharp edges and in fact the radar signal decreases from the centre towards the outside.

## Online data portal

All data is transferred to the GEOPREVENT online data portal where it can be accessed by authorised users at any time via PC, tablet or smartphone. The detected avalanches are mapped according to their size and intensity (Figure 1). Event images and characteristics, such as average frontal speed and event duration, are also displayed. In addition, all status images taken regularly are available and users can control the camera live. Further, it is possible to view and edit the recipient list for automatic event SMS in the data portal.

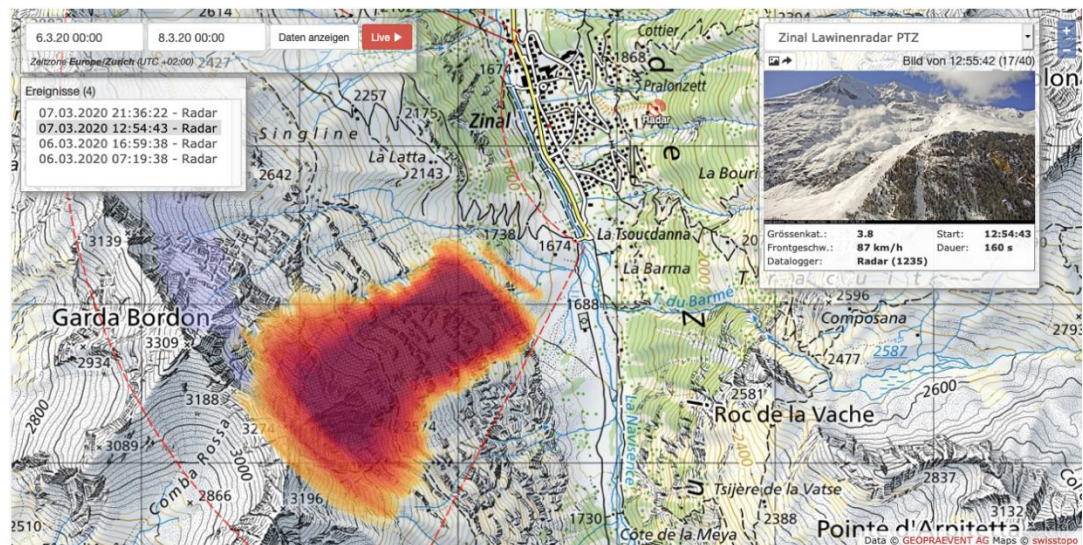


Figure 1: Illustration of an avalanche in the GEOPREVENT online data portal.

## Alarm system

The avalanche radar can be upgraded to an alarm system with connection to alarm horns. Ideally, an initial calibration period is applied to collect data on events and possible sources of false alarms. We then re-process this data and decide together with you, which events should close trigger an alarm and which should not.

## Prices (in EUR, excluding tax)

The prices given below refer to the agreement between Geoprevent and University of Florence of 02/03/2021 (Prot. N. 0083194).

### AVYX avalanche radar

Pos.	Description	price per month	Total price in EUR
1.1	Rental of doppler radar system of latest generation for 3 months (July – Sept 2022)	5.000,00	15'000,00
1.2	Rental of elements for stable mounting and attachment of system components	2.000,00	6.000,00
1.3	Licensing and upgrading	included	included
1.4	Software (detection algorithms)	included	included
1.8	Rental of fuel cell operating with methanol or solar panels	2.000,00	6.000,00
1.9	Rental of 2 alarm horns	1.200,00	3.600,00
1.9	Installation of alarm horns	3.000,00	3.000,00
2.1	Continuous monitoring service (up to 6 months), intervention time 1 day	800,00	2.400,00
2.2	Installation in phase of emergency (up to 600 km away from the provider head-quarters)	40.500,00	40.500,00
	High-resolution camera system	Free demo	Free demo
	Deformation analysis DEFOX	Free demo	Free demo
<b>Total EUR exkl. VAT</b>			<b>76.500,00</b>

### IBIS Interferometric radar

Pos.	Description	price per month	Total price in EUR
1.1	Rental of interferometric radar for 2 weeks (July 2022)	10.000,00	5'000,00
1.2	Rental of elements for stable mounting and attachment of system components	2.000,00	1.000,00
1.3	Licensing and upgrading	included	included
1.4	Software (deformation analyses)	included	included

1.8	Rental of fuel cell operating with methanol or solar panels	2.000,00	1.000,00
2.1	Continuous monitoring service (up to 6 months) intervention time 1 day	800,00	400,00
2.2	Installation in phase of emergency (up to 600 km away from the provider headquarters) 60% discount for joint installation with avalanche radar	40.500,00	16.200,00
10% combination discount (3 months avalanche radar operation and 2 weeks interferometric radar)			-2.360,00
<b>Total EUR excl. VAT</b>			<b>21.240,00</b>

### Further remarks

- Power supply: 230 VAC is supplied at the given radar location. Alternatively, the radar runs on autonomous power supply (fuel cell) provided by GEOPREVENT.
- The customer provides a SIM card with 30GB/month data plan. We assume that GSM network (3G or 4G) is available at the system site. A radio link for data communication is not included.
- Radio license for radar use has to be supplied by the client. The radar needs 30 MHz bandwidth between 10 and 10.6 GHz for a FMCW modulated signal with a power of max. 50 dBm e.i.r.p. In Switzerland, the regulations according to [RIR1108-06](#) allow a license-free operation at most locations.
- We expect that the customer provides personnel for the installation (at least one person), if necessary a mountain guide.
- Minimum rental time 1 month (for avalanche radar).
- Possible helicopter flights are not included and will be invoiced directly by the operating helicopter company.
- Repairs are only covered for defects not caused by external influences (e.g. fire, accident, water, chemicals, violence, voltage increases, lightning strikes, rockfall etc.).

### Payment Terms

Quarterly at end of service, e.g. Sept 30

### Rates, general terms and conditions

All work not included in the offer will be charged based on time:

Electronic Engineer I, II, III	180, 160 and 140 €/hour.
Technician	120 €/hour.
Expenses	at cost



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GEOPREVENT's general terms and conditions as well as the technical user agreement apply.

The offer is valid for 3 months. Prices are in EUR, excluding taxes.

### **Liabilities/damages**

Electronic alarm and monitoring systems, combined with organizational measures, are cost-effective solutions to complement or replace structural measures. They considerably reduce the risk of injury or death to people or damage to mobile property by reducing their presence probability at the time of the event. However, they are not able to prevent or mitigate the event.

No system is capable of detecting all events with a 100% certainty. Potential limitations and weaknesses of a system are mentioned in the technical user agreement.

GEOPREVENT is covered by liability insurance but declines any liability which is not caused by gross negligence (Art. 100 ff. Swiss Code of Obligations).

We thank you very much for your inquiry and would be happy to collaborate on the above project.

Best regards,

GEOPREVENT AG



Susanne Wahlen

### **About GEOPREVENT**

GEOPREVENT operates more than 150 monitoring and alarm systems in the area of natural hazards across Europe, North and South America and China. We offer comprehensive process understanding based on many years of experience and the interdisciplinary collaboration of physicists, engineers and electronics engineers with natural hazard experts; we cover the entire process chain; from the natural hazard process being monitored to the ideal sensor technology applied to data and alarm transmission to safety and alarm concepts.

## **Appendix**

### **Service Options**

### **Service option 'Basic'**

Described here is the standard service option we offer for the reliable operation of your measuring or monitoring station.

#### **The service option 'basic' includes:**

- Transmission of measurement and status data to our servers via mobile and/or tethered data links.
- Processing and evaluation of all measurement data on our servers. The data is securely displayed and accessible on our data portal on [data.geopraevent.ch](http://data.geopraevent.ch) and on [m.geopraevent.ch](http://m.geopraevent.ch) for access from mobile devices.
- Backup and archival storage of all data.
- Automated checks of all measurement and status data in order to verify the correct functionality of the station. Any problems arising during office hours will be investigated and solved remotely if possible. You are immediately informed of any functional drawbacks of your station.
- The distribution of alerting or warning messages via our SMS-server.
- Storage of common spare parts and components.
- One yearly service call if necessary. Included are small repairs (without material) to mend usual signs of wear. The maintenance date is determined by Geopraevent.

#### **Optional services are:**

- The distribution of prioritized SMS and/or phone calls in case of an alarm via redundant servers of the Swisscom eAlarm system.
- On-call service: Remote diagnostic within 3 hours of an alarm, 24/7.

#### **The service option 'basic' does not include:**

- Repair work, spare parts.
- Extraordinary transportation fees (helicopter) or, if required, the company of a mountain guide.
- Action required outside normal office hours (Mo-Fr, 8am – 5pm).

## **Appendix**

Technical User Agreements

General Terms and Conditions

Technical user agreement for monitoring systems based on

## Long-Range Radar for Snow Avalanches

<b>Purpose</b>	The long-range radar is capable of measuring objects moving at a distance of up to 5 km from the radar position. If measurements indicate mass movements exceeding defined dimensions (i.e. avalanche, debris flow or rock fall), an alarm is triggered.
<b>Technology</b>	The radar transmits electromagnetic radiation that is reflected back to the radar by the target area. The radar detects range, azimuth and speed of the targets.
<b>Measurement</b>	The acquired data is analyzed locally by the radar.
<b>Alarm</b>	The alarm is triggered by the radar typically within some seconds if measurements manifest data signatures typical for mass movements.
<b>Risks</b>	<p>All monitoring systems have limits. Electronic components might fail, sensors can be damaged or destroyed. At GEOPREVENT we strive to find the best compromise between safety, reliability, availability and cost of a system. The following risks are recognized and accepted by the client:</p> <p>The radar only detects targets within the defined target area.</p> <p>Events need to be large enough for the radar to detect them.</p> <p>Electromagnetic interference from strong transmitters in the vicinity can disrupt the measurements.</p> <p>Measurements are averaged over a few seconds. Events shorter than that can't be detected.</p> <p>The radar recognizes avalanches or debris flows based on their velocity pattern and other parameters with a high probability but not with 100% certainty. Unusual events may not be detected, or unusual/extreme weather can decrease the instrument sensitivity. Especially wet snow and strong rain fall can decrease the range of the system.</p> <p>If multiple events occur simultaneously in different locations, they may not or not all be detected and their position might be misinterpreted.</p> <p>Water, snow or ice accumulating on the antenna can reduce sensitivity and range. An anti-snow system can increase the availability of the radar system.</p> <p>We recommend the system is regularly inspected for damages or manipulations that alter the orientation of the antenna.</p> <p>We recommend that the system is run in test mode at the beginning. Data from a few events can help set the correct alarm thresholds that will increase the chance of detecting the right events while reducing the chance of false alarms.</p>

## General Terms and Conditions

(GEOPRÆVENT AG, Version 2.0)

### 1. Contractual bases

- 1.1 The contract comes into being upon written acceptance of the written quotation with its attachments (number 1.2). In the absence of deviating information, GEOPRÆVENT AG is bound to quotations for 3 months.
- 1.2 The subject of the parties' obligations to perform is defined by the contract and its components, such as cost calculation, and its attachments, such as (technical) usage agreement(s), services description, as well as supplementing these general terms and conditions (GTC).
- 1.3 General conditions of the customer have no validity, as long as nothing has been explicitly agreed in writing to the contrary.
- 1.4 Contract modifications require the written form. The simple written form is valid for further expressions of will, incl. email and fax.

### 2. Scope of the contractual services

- 2.1 Unless agreed otherwise, the prices are in Swiss Francs, without value added tax, also without costs of packaging, dispatch, transport, customs or transport insurance (Incoterms ex works EXW).
- 2.2 Payments are to be made at the latest on the day of maturity, without other agreement 30 days after invoicing, in Swiss Francs and without any deduction (such as cash discount, retentions) and without right of offsetting, this to a designated bank account of GEOPRÆVENT AG in Switzerland.
- 2.3 Advancements of the contractual product between conclusion of the contract and beginning or end of co-operation in accordance with the contract entitle GEOPRÆVENT AG unilaterally to adjust the service details, as long as no degradation of the quality and no higher costs for the customer are associated with this.

### 3. Ownership and possession, access

- 3.1 As long as no deviating agreement has been made in writing (separate purchase or work contract), GEOPRÆVENT AG remains the owner and proprietor of the material, which is used in accordance with the contract for the fulfilment of the order. This is also not rented to the customers. The agreed prices are valid for periodic operating costs and expenditure for materials in the case of their contractual use.

- 3.2 The customer guarantees that GEOPRÆVENT AG will be granted, for the duration of co-operation, access to the location where the contractual service is to be rendered, and use of any infrastructure there, as long as this is necessary or helpful for the fulfillment of the contract.
- 3.3 If access to the place of service provision requires the employment of special means of transport, for example helicopters, then GEOPRÆVENT AG shall be compensated separately for such extraordinary costs.

### 4. Completion of the order and liability

- 4.1 GEOPRÆVENT AG guarantees fulfillment of the contract with the latest technology (number 2.3). The obligations to perform are limited by operational and technical possibilities: GEOPRÆVENT AG is not liable for permanent accessibility and work capability outside of usual office hours and their operational possibilities, and is not responsible for the permanent operability of the technical infrastructure in the possession of third parties or of GEOPRÆVENT AG, such as in particular continuous operation of the hardware and software as well as the agreed upon communication links.
- 4.2 GEOPRÆVENT AG assumes no liability for the success of their order. GEOPRÆVENT AG is however liable for the careful execution of the tasks assigned to it and/or is liable for their culpable, also (grossly) negligent non-performance and/or malperformance. GEOPRÆVENT AG is not responsible for indirect damages and/or consequential damages, which can arise for the customer, because an event was not detected or was not indicated, and is in particular not responsible for damages of third parties.
- 4.3 It is the responsibility of the customer to insure their risks appropriately if necessary.
- 4.4 The customer is aware that also in the case of correct fulfillment of a contract an event can occur, without the contractually defined service of GEOPRÆVENT AG taking place or the service is received by the customer in good time (detection, message), and that this event with or without fulfillment of the contract by GEOPRÆVENT AG can cause an occurrence of damage also with third parties, for which the customer is exclusively liable. The risk of the occurrence of an event without preliminary warning is lowered, it cannot however be ruled out.
- 4.5 If GEOPRÆVENT AG is made responsible by third parties for maintained damage in connection with the

contractual fulfillment, the customer undertakes to support GEOPRÆVENT AG in defending itself against such claims and in the case of a judgment or a settlement (the latter with previous consent of the customer) shall upon first request completely indemnify them.

- 4.6 GEOPRÆVENT AG is entitled to enlist third parties for the fulfilment of the order (auxiliary persons and substitutes), as long as this can objectively serve the interest of the customer.

#### **5. Subsidiary: Purchase or work contract**

- 5.1 Only if agreed in writing does the customer acquire by purchase and/or work contract ownership of objects, which GEOPRÆVENT AG uses for the fulfilment of the contract. Transfer of ownership takes place in this case step by step against payment of the agreed price.
- 5.2 GEOPRÆVENT AG guarantees in this case that the contractual objects are without production and material defects, as well as their fitness for the intended use, this applies for the duration of one year starting from transfer of ownership.
- 5.3 In the case of occurrence of a defect within the guarantee period, GEOPRÆVENT AG is liable for re-establishment of the usability within an appropriate response time. Annulment is waived, as is also the liability for damages of third parties.
- 5.4 If the customer decides after the end of the co-operation to take over ownership of the objects and the parties agree on the purchase price, the customer takes over the objects as they are; every guarantee of GEOPRÆVENT AG is waived in full, service and maintenance work are cancelled without separate agreement.

#### **6. Confidentiality, intellectual property rights**

- 6.1 With this contract there is no transmission of intellectual property rights, in particular connected with patent rights or expertise. Technical documentation, which is provided to the customer in the context of this contract, remains the property of GEOPRÆVENT AG and shall be destroyed or returned and/or deleted from the data media of the customer after the end of the co-operation.
- 6.2 The parties undertake to treat professional secrets of the respective other party confidentially.

#### **7. Beginning and end of co-operation**

- 7.1 GEOPRÆVENT AG shall begin with the contractual obligations at the agreed time, if the customer has correctly furnished any advance payments, and GEOPRÆVENT AG was not prevented from the timely performance of the contractual services by extraordinary circumstances (for example influences of the weather, exclusion of access to the place of performance of the contract, unusual amassment of natural occurrences and as a consequence excessive demand of resources, delay of third party suppliers, defects with indispensable devices). If GEOPRÆVENT AG does not begin with the contractual obligations in time, this entitles the client to withdraw from the contract after reminder and subsequent default. The service of positive fulfilment interests in the contract is waived. If GEOPRÆVENT AG is in default of service in the course of the co-operation, and this default persists, although objectively GEOPRÆVENT AG would be (again) able correctly to fulfill, then the customer is entitled to terminate the co-operation only with effect for the future without further deadlines. Up to the occurrence of the default the contractual services of the customer remain due. The parties are entitled to no right of fulfilment interest.
- 7.2 The contract regulates the duration of the contractual services. Without a defined term, the contract can be terminated with a period of notice of 3 months to the end of each month; shorter term cancellations of the contract are considered untimely.
- 7.3 At the end of co-operation, outstanding receivables are due immediately. GEOPRÆVENT AG shall vacate the place of performance and cut any open communication connections.

#### **8. Applicable law and court of jurisdiction**

- 8.1 Swiss substantive law applies exclusively, with the exclusion of the international conflict of law rules under private law. In the case of a purchase, the applicability of the "Vienna Sales Convention" is waived.
- 8.2 **Court of jurisdiction is at the registered office of GEOPRÆVENT AG.**  
GEOPRÆVENT AG is however entitled alternatively to bring an action against the customer at its registered office.

GEOPRÆVENT AG, September 2014