

REMOTE SENSING DATA: SOME CRITICAL COMMENTS ON THE CURRENT STATE OF REGULATION AND REFLECTIONS ON REFORM

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ABSTRACT

This paper provides an overview of the current international and national regulation in relation to remote sensing data, with a view to analysing its effectiveness in the face of modern demands for (more) information.

In a preliminary review, the international legal instruments and national laws relevant to the subject will be analysed. Thereafter, the national legislation of some major space-faring nations will be examined as a means of establishing differences in the regulation and handling of remote sensing data, alongside its effects on information policy. The final part of the paper focuses on whether there is a need for a revised approach to the international legal regulation of remote sensing data and control of its use. This latter point is important in the face of publicly or privately enforceable restrictions on access to essential information. The article thereafter highlights the most important issues to be addressed by any such proposal for reform.

INTRODUCTION

The commercial remote sensing data¹ market is evolving and expanding² its services, which today range from online mapping, forestry, agricultural and geological studies³, to

the support for news-making, shipping, real estate and other activities⁴.

Because of the nature of market players and the characteristics of space-related activities (e.g. dual use of "space" products and services, leading to export control), including its commercial development, regulations for RS data acquisition, processing and distribution have and continue to be introduced in different countries. Among the issues to be considered in adopting such regulations include the imposition of government limitations on the availability of images from high resolution systems, the options for industry self-regulation, suitability of copyright legislation, pricing, equity and competition with government programs.⁵

The immediate interest of this paper is to explore the varying approaches to the status of RS data, itself crucial to data circulation and protection, as well as to the development of value-adding activities.

Current research shows that RS data, as part of other commercial applications for space exploitation, has become an expensive commodity subject to great demand⁶. The

¹ Hereinafter RS data.

² See e.g. Satellite Industry Association, *State of the Satellite Industry Report*, prepared by Futron Corporation, June 2006 available at http://www.futron.com/pdf/SIA_2005_Indicators.pdf, last visited 17.08.2006.

³ Cited e.g. in Gabriela Seiz et al., *Earth Observation Market Development: Benefits to Industry*, ESA

Bulletin 125, February 2006, available at http://www.esa.int/esapub/bulletin/bulletin125/bul125d_seiz.pdf, last visited 17.08.2006.

⁴ Lawrens W. Fritz, *High Resolution Commercial Remote Sensing Satellites and Spatial Information Systems*, available at <http://www.isprs.org/publication/s/highlights/highlights0402/fritz.html>, last visited 17.08.2006.

⁵ Lawrens W. Fritz, *ibid.*

⁶ See eg Joanne Irene Gabrynowicz, J.D., *Space Law: Its Cold War Origins and Challenges in the New Era*

particular remote sensing activities protected by space law⁷ are increasingly identified among the potential markets for private and government space-based systems.⁸ RS data from commercial sensors offer the geospatial information communities in the public and private sectors important new sources of timely and accurate spatial information that can augment data provided by public-sector remote sensing systems.⁹

Certain national laws have a degree of similarity in their regulatory content that could provide a conceivable approach to a comprehensive international regulation. Pursuing an international approach to trans-border remote sensing activities appears only logical, since they cannot be effectively regulated by national law alone.

A new regulatory mechanism could clarify and establish the status of RS data, unify the types of RS data and determine equal conditions of distribution and restriction on use. This in turn would help create a common policy towards the “public-private” interests’ dichotomy in space.

After analysing the international legal instruments and national laws on remote sensing in a preliminary review, the national legislation of some major space-faring nations will be examined as a means of establishing differences in regulation and handling of RS data, and its effects on information policy. The final part of the paper focuses on whether there is a need for a revised approach to the international legal regulation of RS data and control of its use. The article concludes by highlighting the most important issues to be addressed in any future reform.

of Globalization, 37 *Suffolk U. L. Rev.* 1041, at 1055-1057.

⁷ See U.N. Principles on Remote Sensing U.N. Doc A/RES/41/65 (1986); hereinafter Principles.

⁸ See Commercialisation of European Meteorological Operational System and of World Meteorological Organisation, WMO Res. 40, 1995.

⁹ R. J. Birk, T. Stanley, G. I. Snyder, T. A. Hennig, M. M. Fladeland and F. Policelli, Government Programs for Research and Operational Uses of Commercial Remote Sensing Data, *Remote Sensing of Environment*, 88 (2003), at 3-16.

1. OVERVIEW OF NATIONAL AND INTERNATIONAL LEGISLATION

a. International instruments

The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies¹⁰ is the main treaty governing all “national space activities” carried out or supervised by states (Art. VI). Remote sensing activities by their very nature fall within the ambit of the Treaty and international space law. The only ‘problem’ is that the detailed regulation (supervisory framework) for national space activities carried out by non-governmental (private) entities falls squarely within the sole jurisdiction of states (Art. VI para. 2). Apart from this short provision, the OST does not contain any norms that are directly applicable to private actors within the space (and remote sensing) industry. Regulation of commercial space activities did not appear on the agenda at the time the Treaty was drafted and adopted.¹¹

The UN Principles Relating to Remote Sensing of the Earth from Outer Space constitute a particular international set of rules. Although the Principles are not a binding international treaty, many space law researchers agree that the document has become a codification of the customary law that has emerged.¹² Its fifteen principles set out the basis for the remote sensing activities around the world. The Principles regulate in general the cooperation (relationship) among sensing and sensed states.

The definition of remote sensing laid down in the Principles does not, however, adequately respond to the current state of affairs: the conditions of access to the RS data are fairly vague and the specific obligations of the private

¹⁰ January 27, 1967, 610 *UNTS* 205, hereinafter OST.

¹¹ ILA Space Law Committee Report 2004, *Remote Sensing Earth Observation Satellites*, available at <http://www.ila-hq.org/pdf/Space%20Law/Space%20Law%20Report%202004.pdf>. Hereinafter ILA Report 2004, last visited 17.08.2006.

¹² ILA Toronto Conference (2006) Space Law, Second Report, *Legal Aspects of the Privatisation and Commercialisation of Space Activities: Remote Sensing and National Space Legislation*, at 5, available at <http://www.ila-hq.org/pdf/Space%20Law/Report%202006.pdf>, last visited 17.08.2006. Hereinafter ILA Report 2006.

remote sensing companies in data exchange transactions are not laid down.¹³ All this makes the application of the Principles somewhat difficult.

There are a number of bi- and multilateral agreements that regulate various aspects (largely technical) of remote sensing,¹⁴ but which are not designed to fill the gaps within the Principles. For instance, EUMETSAT / and the US National Oceanic and Atmospheric Administration (NOAA) Agreement on Joint Transition Activities regarding Polar-Orbiting Operational Environmental Satellite Systems¹⁵ and other EUMETSAT agreements do not contain any precise reference to the status of RS data. This is subject to states' and organisations' remote sensing policies.

It is debatable whether a RS data exchange agreement can be seen as a public international law mechanism, or whether it should be seen as a transaction of a nature closer to private law, be it concluded between states, or states and international organisations. These agreements lay down data exchange mechanisms between the parties and therefore are very close to licence agreements set by private companies.

Another example is the Agreement Concerning Operation of Commercial Remote Sensing Satellite Systems between Canada and the USA¹⁶ aims at adopting legislation in Canada similar to that of the USA as a means of avoiding inconsistencies in cooperation between these countries and at the private remote sensing activities level.

b. National regulations

i. Special laws and other legislative acts

A *lex specialis* regulating remote sensing activities is a rare occurrence among the regulations on space activities in existence in different national legal systems.

The USA has the most extensive space law legislation, Canada and Russia have general provisions with regard to space activities, as well as some provisions explicitly or implicitly

addressing remote sensing activities: licensing conditions for remote sensing activities, (some) restrictions on the supply of data dependent on resolution quality and e.g. matters of national security / fulfilment of international obligations. Europe has no comparable EU-level legislation. Some cases of national legislation, mostly general in character, fall outside the scope of the current regulatory analysis.¹⁷

Canada adopted an Act governing the operation of remote sensing systems in November 2005.¹⁸ This legislation is designed to promote the development of the commercial remote sensing industry in Canada, whilst providing the government with the power to curb satellite operations to protect national security, a process referred to in the industry as 'shutter control'. The legislation also fulfils Canada's obligations under the Agreement with the U.S. Concerning Operation of Commercial Remote Sensing Satellite Systems.

The USA has for the time being provided the most detailed regulation, be it of the space activities on the whole or of remote sensing activities in particular. The relevant legislation includes: US Land Remote Sensing Policy Act,¹⁹ Department of Commerce / NOAA Interim Final Rule on the Licensing of Private Land Remote-Sensing Space Systems.²⁰

The Russian Federation has a Law on Space Activities,²¹ as well as the Rules on the Licensing of Space Activities.²² Private remote sensing activities are explicitly included within the activities under the scope of that regulation. The draft law on commercial space activities was rejected by the Russian Federation President in late 1999, leading to abandonment of any subsequent discussion of the matter in Parliament.

One point worth mentioning is that the US American and Canadian legislation meet on

¹³ See ILA Report 2004, above fn. 11; ILA Report 2006, above fn. 12.

¹⁴ See ILA Report 2004, at 4, above fn. 11.

¹⁵ State Dept. NO. 03-82, 2003 WL 22137190.

¹⁶ See U.S. Department of State fact sheet from June 16, 2000, available at www.licensing.noaa.gov/rsat2/factsheet.htm, last visited 17.08.2006.

¹⁷ Information from the UN COPUOS web-site, at www.unoosa.org/osa/en/SpaceLaw/index.html, last visited 17.08.2006.

¹⁸ From 25.11.2005, S.C. 2005, c. 45.

¹⁹ Title II and V.

²⁰ 15 CFR 960, April 25, 2006, hereinafter NOAA Rules.

²¹ Federal Law No 5663-1, from August 20, 1993, as amended.

²² Rules No. 403 from June 30, 2006, hereinafter Russian Rules.

many points (by dint of their co-operation), whereas the Russian acts differ greatly in content. The differences relate to e.g. licensing conditions²³ and terms thereof,²⁴ and provisions regarding protection of the RS data. What makes them similar is that none of the acts (sufficiently) regulates the status of the RS data. The questions of ownership and protection remain unaddressed. The NOAA Rules in § 960.12 lay down data policy for remote sensing space systems that regulate access modes to unenhanced data (only), depending on the financing of a remote sensing system. Furthermore, conditions of sharing unenhanced data with sensed states are provided in § 960.11 (10), while § 960.11 (13) regulates the requirement to submit a Data Protection Plan (that encompasses tasking, operations, processing, archiving and dissemination). Taking into account the NOAA commentary on the Rules that “*actual licences may differ in certain terms and respects*”,²⁵ it is not clear whether the licensees’ data dissemination plans will be identical or indeed differ substantially. The Russian Rules contain very general provisions with regard to data protection, stating that the information has to be protected from unauthorised access. As a result a remote sensing company must obtain a special licence allowing it access and work with the documents that are state secrets: RS data, especially of high resolution, falls within the definition of state secret.

ii. Space policies

Many countries (as well as some international organisations) choose to establish official policies with regard to space exploration in general and remote sensing in particular. Those documents do not create legal rights and remedies, rather setting only objectives for the development of a certain sphere. The majority of

these states have only overall space policies that address, *inter alia*, (commercial) remote sensing.

The EU has adopted the White Paper on Space Policy,²⁶ subsequent to its predecessor Green Paper.²⁷ Both documents address the issues that have to be encompassed by a future common space policy document. The White Paper notes that the efficient use of spatial data is possible only where co-ordinated data policies exist.²⁸ Licensing is mentioned as a target for future drafts. Despite these assertions, several Member States (e.g. Italy, France) do not have any written space policies whatsoever.

The Russian Federation has a general National Space Policy Concept from 1996 (although never published); the National Remote Sensing System Development Concept is currently being drafted.²⁹

Two countries that adhere to operative policy documents dealing specifically with remote sensing are the U.S. and India. US Commercial Remote Sensing Policy does not refer to the status of RS data.³⁰ conditions for dissemination in its Part II provide only the goal of timely and responsive regulation of the licensing operations; Part VI regulates export control mechanisms.

The Indian Remote Sensing Data Policy³¹ sets its goal in better management of RS data acquisition and distribution, proclaiming that the Government of India (through its national remote sensing agency) is “the sole and exclusive owner of all data collected/received from IRS (Indian Remote Sensing Satellites)”. Governments are furthermore in control of imaging tasks and distribution, rendering a licence a pre-requisite to data acquisition and / or distribution. The Indian policy makes data

²³ Cf. No.4 (e) (*) Russian Rules – receiving and/or processing of the information from the remote sensing satellites (here and further authors’ own translation), § 960 (a) – operation of a remote sensing system.

²⁴ Cf. No.8 Russian Rules (5 years), § 960.9 NOAA Rules (operational lifespan of the system).

²⁵ See at www.licensing.noaa.gov/eolicense.htm, last visited 17.08.2006.

²⁶ COM (2003) 673, available at http://ec.europa.eu/comm/space/whitepaper/pdf/spwhpap_en.pdf, last visited 17.08.2006.

²⁷ COM (2003) 17 final January 21, 2003, available at http://ec.europa.eu/comm/space/whitepaper/greenpaper/greenpaper_en.html, last visited 17.08.2006.

²⁸ White Paper, at 16, above fn. 26.

²⁹ Information from www.gisa.ru.

³⁰ Presidential Directive from April 25, 2003, available at <http://crsp.usgs.gov/pdfs/factsheet.pdf>.

³¹ ISRO:EOS:POLICY-01:2001, available at <http://www.isro.org/Announcement-opportunity/rdsp.pdf>, last visited 17.08.2006.

distribution further dependent on the quality of resolution.

The European Space Agency (ESA) has its own data dissemination policy.³² The rules relate to contractual matters mostly: modes and conditions of licensing, issues of IP rights and copyright. Therefore, their provisions will be analysed in a separate section below on private regulation of remote sensing.

iii. Relevant norms of (private) law

The rules of law with the greatest impact on the handling of RS data, particularly by private actors, are those of intellectual property (IP) and copyright law in particular. This body of law flanks any enquiry as to data ownership and status: whether raw data is copyrightable, whether the deployment of computer programmes provides enough creativity to render the processed data copyrightable and finally, whether archiving can create database protection rights (at least for European producers).

Intellectual property laws are claimed to be applicable in relation to RS data. Some national space laws,³³ as well as both national³⁴ and corporate³⁵ data policies operate with copyright terminology or refer to existing national and international intellectual property (copyright) regimes. It is, however, questionable whether the IP laws are applicable to RS data and whether the latter is copyrightable and subject to legal protection.

The number of contracting parties to the Berne Convention for the Protection of Literary and Artistic Works³⁶ is a first indication of the support by a majority of legal systems for

copyright protection in “literary and artistic works” in terms of Article 2 Berne Convention. This embodies the “creator doctrine”³⁷ by which copyright protection requires a degree of skill and novelty. For a work to be eligible for protection, an author must demonstrate creative effort. Ideas, processes, methods of operation, including data, do not fall within the ambit of copyright protection.³⁸ RS data is generated automatically, i.e. by using special computer programmes. It is thereafter subjected to processing. It contains factual information (the look of the earth surface, the depth of oceans etc.). Consequently, it is not generally eligible for copyright protection at all.

A solution to the lack of protection for databases was found at European Union level through its introduction in the Database Directive.³⁹ The Directive grants the database-maker a new *sui generis* right against unauthorised extraction or re-utilisation of the substantial parts of the database, as a means of protecting substantial investment in creating a database (namely, in obtaining, verifying or presenting the contents of a database).⁴⁰ The protection is granted to only those databases created within the Common Market, or if created outside, then under special conditions (through bi- or multilateral agreements).⁴¹ Such protection is particularly suited to RS data which is (electronically) archived after being received by the ground stations.

The first decisions of the European Court of Justice (ECJ) relating to the interpretation of the Directive have, however, raised doubts as to the scope of interested parties and protective mechanisms involved *vis à vis* the organisations

³² E.g. Earth Explorer Data Policy, December 18, 2003 EEXP-MMAN-EOPG-PD-03-0001, available at http://www.knmi.nl/~meulenvd/esa/Envisat/ESA_PB-EO_2002_79,REV_3.pdf, last visited 17.08.2006; Envisat Data Policy, August 23, 2000, available at <http://www.knmi.nl/~meulenvd/esa/Envisat/envisat-data.pdf>, last visited 17.08.2006.

³³ E.g. Russian Law Regarding Space Activities.

³⁴ E.g. Indian Space Policy.

³⁵ E.g. SPOT general licence, Eurimage licensing conditions, ESA ENVISAT Data Policy.

³⁶ Paris Act of July 24, 1971, as amended on September 28, 1979 1161 *UNTS* 3; 169 states parties, information from www.wipo.org, last visited 17.08.2006.

³⁷ L. Guibault, B.P. Hugenholtz, *Study on the Conditions Applicable to Contracts Relating to Intellectual Property in the European Union*, Final Report, Institute for Information Law, Amsterdam, May 2002, at 24, available at <http://www.ivir.nl/publications/other/final-report2002.pdf>, last visited 17.08.2006.

³⁸ Articles 2, 5 WIPO Copyright Treaty (WCT) December 20, 1996, 36 *ILM* 65.

³⁹ Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, OJ 1996 L 77, at 20-28, hereinafter the Directive.

⁴⁰ Article 7 Directive.

⁴¹ Article 11 Directive.

/ companies generating the satellite data.⁴² The ECJ ruling from 2005 states that protection is only granted to those database makers that substantially invested in creation of databases by checking, verification or updating the database, but not to those who have invested in creating the database contents itself.⁴³ On July 13, 2005, the English Court of Appeal, sitting on the originator case, again confirmed the ECJ view, stating that the database right cannot be derived from the mere creation of a database.⁴⁴ Given the influence of a preliminary ruling on domestic courts when deciding similar cases, it is highly questionable whether the *creators* of the RS databases will be able to protect the contents of those databases under the Database Directive.

Interestingly, the recent evaluation report on the Directive itself states that the economic impact of the *sui generis* right on database production is unproven. One of the harshest criticisms against the Directive is that the scope of the protection is unclear: it does not stimulate the growth of the areas supposed and is perceived as locking up information.⁴⁵

2. OPERATIVE LEVEL: THE INDUSTRY

a. Key players

In the opinion of the authors, the commercial remote sensing market does exist, because RS data is traded in: "it does not much matter who is buying or from where their funding ultimately derives".⁴⁶ It is true that such

projects as French SPOT, Canadian RADARSAT, Indian IRS, European ERS-1, 2, Japanese JERS-1 were developed and carried out by governments, but each created a private company for the operation of the project's data gathering and distribution system.⁴⁷ Their products (as well as of US companies) are available to anyone on a commercial basis. It is precisely this combination of government-furnished space imagery with that supplied by private corporations which have relegated earth observations into a new range of opportunities with wide commercial implications.⁴⁸

The ownership and operation of remote sensing satellites by the private sector has long been encouraged by many governments (in some cases, with only marginal success).⁴⁹ Even if there are only a few private companies actually operating private remote sensing satellite systems, the value-adding firms "play an important role in converting raw imagery data into the products desired by customers",⁵⁰ and their number and revenues gained are growing.⁵¹ This growth is largely driven by evolving business opportunities through new and continuing military and intelligence imagery contracts, including expanding civil and commercial imagery markets, such as e.g. online mapping services.⁵²

⁴² Cases C-203/02 *British Horseracing Board Ltd and others v. William Hill Organisation Ltd*; see also Case C-46/02 *Fixtures Marketing Ltd v Oy Veikkaus Ab*, Case C-338/02 *Fixtures Marketing Ltd v Svenska Spel AB*, Case C-444/02 *Fixtures Marketing Ltd v. Organismos prognostikon agonon podosfairou AE (OPAP)*, ECJ Decisions of November 9, 2004, OJ C 6, 08.01.2005, at 4, 10.

⁴³ Case C-203/02 Decision, para. 31.

⁴⁴ Case No. A3/2001/0632 [2005] EWCA Civ 863.

⁴⁵ *First Evaluation of Directive 96/9/EC on the Legal Protection of Databases*, Working Paper, 12 December 2005, available at http://ec.europa.eu/internal_market/copyright/docs/databases/evaluation_report_en.pdf, last visited 17.08.2006.

⁴⁶ *The State of Commercial Remote Sensing Market*, available at <http://www.eonline.com/Common/Archives/2004a>

[ugsep/04augsep_Conversation.tml](#), last visited 17.08.2006.

⁴⁷ *The Commercialisation of Remote Sensing*, available at

http://rst.gsfc.nasa.gov/AppA/Part1_25.html, last visited 17.08.2006.

⁴⁸ *Id.*

⁴⁹ L. W. Fritz, above fn. 4.

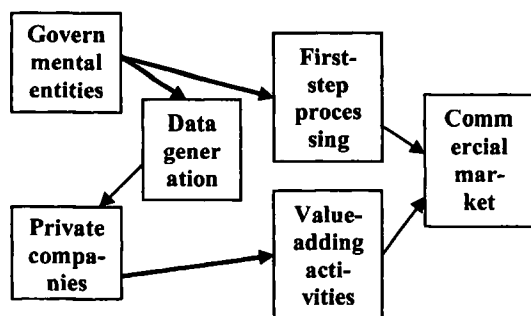
⁵⁰ K. M. O'Connell, J. C. Baker, B. Lachman, S. Berner, D. Frelinger, K. E. Gavin, U.S. COMMERCIAL REMOTE SENSING SATELLITE INDUSTRY: AN ANALYSIS OF RISKS, RAND Monograph Report, 2001, at xi.

⁵¹ The global commercial satellite industry generated some \$88.8 billion in revenue in 2005, an increase of 7.4 percent over 2004 revenues – see *Commercial Satellite Industry Continues To Grow*, Report of the Satellite Industry Association available at <http://www.sia.org/PDF/06142006PRStateofSatelliteIndustryReport.pdf>, last visited 17.08.2006; see also Gabriela Seiz et al., above fn. 3.

⁵² Satellite Industry Association, *State of the Satellite Industry Report*, June 2006, available at

Global competition in remote sensing "is here and will continue evolving" among purely commercial actors, hybrid companies (e.g. public-private partnerships) and even among governments that themselves choose to sell or license RS data generated under state-run programmes.⁵³ This is especially true for the European market, where the concentration between private earth observation companies and profit-bearing military contracts is lower than among its US counterparts.⁵⁴

Described in simple terms, the satellite industry creates and manages remote sensing data in the following way: firstly, data is generated; secondly, data is archived and undergoes first-step processing; thirdly (or sometimes in parallel to the second phase), value-adding activities follow; the final stage is the marketing of satellite-produced data (satellite imagery, weather data etc.).



The whole process, from generating data until its marketing stage, can indeed be carried out by the same entity (a satellite operating company, e.g. OrbImage, ESA). The value-adding companies are not, however, necessarily concomitant with those who operate satellites.

The following digital mapping activities of the famous web-portals may serve as an example. Yahoo and Microsoft's Virtual Earth and Windows Local programmes are using both commercial and government imagery of GeoEye and Information Integration and Imaging LLC. Google Maps obtains imagery from Digital

http://www.futron.com/pdf/SIA_2005_Indicators.pdf, last visited 17.08.2006.

⁵³ Kevin O'Connell, *Commercial Applications of Payloads and Services: Remote Sensing*, in TOWARDS FUSION OF AIR AND SPACE, D.J. Johnson and A.E. Levite (eds.) RAND 2003, at 32.

⁵⁴ Gabriela Seiz et al., above fn. 3.

Globe. It is worth noting that neither the mapping engine companies nor the satellite imagery providers disclose how their contracts operate.⁵⁵

This brings us to the question of data-acquisition. How do value-adding companies access the (raw / processed) data? What kind of rights do they obtain under the licence agreements with the satellite operating companies? These questions are addressed in the subsection below.

b. Private regulations: licences, market practices

The particular constellation of the market players, as well as uncertainties with regard to the regulation of the remote sensing activities described above have forced governmental agencies, international organisations alongside privately operated companies to develop their own data policies and licensing conditions as to the acquisition and distribution of RS data.

Data distribution methods can be divided into two basic types: selection and appointment of distributors for a certain area (or product), and licensing of the data directly to the end-user. The first option can be used by the data-generator companies or state actors; the second by both the data-generator companies and distributing entities. Licensing schemes of both types are briefly presented below.

i. International organisations *ESA*

The first major issue regulated by the data policies of ESA⁵⁶ is the ownership of RS data: ESA maintains the ownership of all primary data and over ESA-derived products on behalf of the Member States. The mechanisms of protection are provided by virtue of database rules, copyright laws and other forms of intellectual property rights.

The distribution modes (as well as prices) depend further on the category of use. Category-1 Use includes research and application development use in support of the mission

⁵⁵ *Internet Mapping Portal Competition Benefits Satellite Imagery Businesses*, available at http://www.space.com/spaceneews/businessmonday_060424.html, last visited 17.08.2006.

⁵⁶ E.g. Earth Explorer Data Policy, Envisat Exploitation Policy.

objective, Category-2 Use encompasses all other uses. ESA is solely responsible for the distribution of data under Category-1 Use, and services for Category-2 Use are delivered to the users by the “distributing entities”. (ESA will grant *non-exclusive licences* to selected distributing entities for the distribution of ENVISAT data over *well identified areas* for a period of 3 years). Data distribution in accordance with the UN Remote Sensing Principles is therefore ensured.

The data for Category-1 Uses has to be used exclusively within the project and solely for these purposes; it may not be distributed. Data are provided under these conditions at the cost of reproduction.

Two consortia (EMMA and SARCOM) are responsible for the distribution of data for Category-2 Uses. They hold agreements with ESA since 2000. The consortia enjoy full freedom of price-setting in accordance with market developments and own business plans. Data distribution by third parties (who obtained data from a distributing entity), without separate agreement by the latter, is prohibited. The distributing entities are required to guarantee access of value-added operators and service providers to the data, as well as the right to sell products and services to users.⁵⁷

The end user thus enjoys copyright over his own interpretation of the ESA processed data.

EUMETSAT

EUMETSAT holds full ownership and all intellectual property and utilisation rights to its satellites and data.⁵⁸ The National Meteorological Services are Exclusive Licence Agents of EUMETSAT data with respect to their national territories.⁵⁹ They are also responsible for commercial data distribution.

The images based on Meteosat data are shared between Meteosat and the service provider generating the images, and all other value added services are owned by the generating service provider alone.⁶⁰

⁵⁷ Part 6.6 Envisat Data Policy Summary.

⁵⁸ Preamble of the Resolution EUM/C/98/Res. IV, *EUMETSAT Principles on Data Policy*. 1-3 July 1998 (hereinafter EUMETSAT Resolution).

⁵⁹ Para. II EUMETSAT Resolution.

⁶⁰ Part 3 Annex I of Resolution EUM/C/04/Res. V, *Implementing Rules for Meteosat Data and Products*, 2-3 December, 2004.

ii. Private companies

ORBIMAGE operates 5 types of end-user licences, all for internal use. All contents are property of OrbImage; re-use and re-sale of copyrighted materials for any purpose is strictly prohibited.⁶¹

Under the licensing conditions of *MDA Geospatial Service Inc.*⁶² the licensee has to accept MDA’s copyright over the data provided. The licensee’s rights depend on the type of product / data licensed (geospatial products and services, satellite imagery), as well as the type of licence itself (single site, multi-work station, and agency-wide licences grant only internal use of the data). Integrator and unlimited licences grant further dissemination rights with regard to the licensed data.⁶³

EURIMAGE holds the copyright and other intellectual property rights over its products, the products moreover being trade secrets of EurImage the user thereby agrees to maintain this status. The licences granted by EurImage are non-transferable licences for internal uses of its products. Under such licences the right of sub-licensing is expressly prohibited.⁶⁴

Spot Image’s products and imagery are protected by IP, copyright and database laws; CNES is the owner of the imagery data. The products remain property of Spot Image and are provided to the end-user on a confidential basis. The licence is limited and non-exclusive, permitting only internal use of the data products and value-added products developed by the end-user which contain licensed imagery.⁶⁵

⁶¹ ORBIMAGE information on licensing, available at <http://www.orbimage.com/docs/Catalog-FINAL-Dec28-2004.pdf>, last visited 17.08.2006.

⁶² The new name for the distribution entity for RADARSAT 1-2 data. Hereinafter MDA.

⁶³ See e.g. MDA’s licensing terms for EarthSat GeoCover Project, available at <http://www.mdafederal.com/geocover/licensing>, last visited 17.08.2006.

⁶⁴ EURIMAGE Standard Terms and Conditions of Licence, available at http://www.eurimage.com/products/docs/standard_terms.pdf, last visited 17.08.2006.

⁶⁵ Non-Exclusive Licence to Use Spot Satellite Products between Spot Image and the End-User, available at <http://cstars.rsmas.miami.edu/ndas/SPOT-EULA-0305.pdf>, last visited 17.08.2006.

Space Imaging retains all copyright and ownership in all of its images and grants non-exclusive licences to use them. The products are provided on a confidential basis, as they contain valuable assets and proprietary information. The user is expressly prohibited from selling, licensing, transferring or disclosing products licensed. The licences relating to data from different satellites (e.g. Landsat, IKONOS, RSD, RADARSAT) contain minor differences.⁶⁶

The only distribution agreement that the authors could access is the *Data Licence and Distribution Agreement* between Radarsat International and OrbImage⁶⁷ from 1999, which is still in force for the distribution of RADARSAT-1 data.⁶⁸ According to this agreement, OrbImage became a non-exclusive distributor of RADARSAT-1 data, data products and associated services on USA territory.⁶⁹ All copyright is vested in the Canadian Space Agency,⁷⁰ from which (under the agreement with Natural Resources Canada) Radarsat International has received an exclusive, unrestricted, worldwide licence for the distribution of RADARSAT data.⁷¹ The terms of the end-user licence were also provided by Radarsat International, together with a prohibition on OrbImage to alter them on its own.⁷² Interestingly, OrbImage has no right to archive or reproduce data provided by Radarsat International,⁷³ thereby putting a stop to the creation of any databases whatsoever.

c. Loopholes in existing regulations and their impact on the commercial market in remote sensing

The main problem surrounding the regulating of generation and dissemination of RS data by private actors is that the status of the RS

data is unclear. This is particularly evident in relation to raw data which, as a “reflection of facts”, and not even a picture. It constitutes a mere combination of signals transmitted to the ground station and subjected to a combination of mathematic formulae, thereafter to be encoded by a computer programme⁷⁴ in order to become readable, at least for professionals.

This uncertainty has led to e.g. the US licensing regulation, which sets forth a condition for the licensee to develop a Data Protection Plan that provides information on how the licensee will protect data and information from tasking through to dissemination⁷⁵.

The status of the processed data is far from clear: moreover, the processing occurs with the help of a computer programme. It is highly debatable whether the images (other types of processed data) are subject to any copyright protection whatsoever.

It is equally debatable whether the database right now available within the European market – by virtue of the Database Directive – is a suitable tool for protection of collections of RS data. ESA claims that this type of protection is the best that can be secured (principally because the raw RS data is not copyrightable).⁷⁶ But the ECJ interpretation of the Directive’s scope raises fundamental questions as to whether the creator of a database (in the sense of creator of the database content, i.e. those entities operating remote sensing satellites) is in fact protected by the database right.⁷⁷

This uncertainty is in part supported by the licence clauses of the European and other RS data providers (e.g. SPOT Image) that refer in their licences to the fact that the data / products are protected under copyright, including the database right, and which are in addition

⁶⁶ Space Imaging Licensing, available at <http://www.spaceimaging.com/aboutus/Licensing1.htm>, last visited 17.08.2006.

⁶⁷ Available at <http://sec.edgar-online.com/1999/11/15/16/0000950133-99-003634/Section29.asp>, hereinafter Agreement, last visited 17.08.2006.

⁶⁸ The authors have no immediate information as to whether the agreement itself has since been altered.

⁶⁹ Article 2 2.1 Agreement.

⁷⁰ Article 9 9.1 Agreement.

⁷¹ Preamble, Agreement.

⁷² Article 9 9.2, Exhibit A Agreement.

⁷³ Article 3 3.2 Agreement.

⁷⁴ For technical peculiarities see G. Raber, J. Tullis, J. Jensen, *Remote Sensing Data Acquisition and Initial Processing*, available at http://www.eomonline.com/EOM_Jul05/article.php?Article=department3, last visited 17.08.2006.

⁷⁵ 15 CFR Part 960 Licensing of Private Land Remote-Sensing Space Systems, Section 960.11(b) (13).

⁷⁶ See ESA press-release at http://www.esa.int/SPECIALS/Intellectual_Property_Rights/SEM1101A90E_0.html, last visited 17.08.2006.

⁷⁷ See above fn. 42 and accompanied text.

provided to the end-user on a confidential basis.⁷⁸

The conditions of RS data dissemination differ substantially, depending on the aim of use (commercial – non-commercial) and the user (e.g. government of the sensed state – state suffering a disaster – researcher – commercial user). The data in these cases is provided under different conditions of use within a different time-framework. The licences grant different rights with regard to the alteration of images and their possible uses.

None of this decries the remaining issue of national security on the commercial market scene. The USA, for instance, empowers the government with the right to exercise the “shutter control”, in terms of which any company licensed under the US laws to engage in commercial remote sensing activities can, when national security is at stake, be prohibited from selling RS data to anyone other than US government for a certain period of time.⁷⁹ Canada last year enacted the same provisions, and Germany is working on a similar draft.⁸⁰ There is a clash between ownership of the data from (privately owned) satellites (in the case of US private remote sensing companies) and decisions as to the use of data, subject to government control.

3. PROPOSALS FOR REGULATING THE REMOTE SENSING DATA MARKET

a. Areas in need of legislative response

The foregoing has demonstrated several ongoing issues of private law stemming from remote sensing activities, particularly when of a commercial nature.

One of the most fundamental issues addressed is the status of RS data. There is a lack of consensus on a general concept of the protection this type of data can *per se* enjoy. The current situation allows data owners to claim all

possible kinds of protection for their data – from copyright to classified information – where this may not always be the case.

The process of generating data from its initial stage through to the final stage of (commercial) distribution may often be divided between different entities (be they of public or private nature). As a result, the information licensing schemes require to be very precise, clear and respect principles of equality. There is a need to specify the scope of rights enjoyed by all those participating in the data process. A unified approach towards the content of licence agreements would create a first point of entry.

Reliance on national policies (which are not always contained in written form) cannot constitute a basis for transparent modes of distribution. Nor is reliance on the data policies of separate organisations or private companies in itself sufficient. There is a need for those states engaging in remote sensing activities to confer with private company licensees in a process of consultation culminating in adoption of codes, containing normative rules to regulate the licensing process (both licensing of the remote sensing activities and data distribution).

b. Possible regulatory instruments

i. International level

It comes as no surprise, therefore, that a reform of the Principles or their transformation within a convention is currently being discussed at international level. The need for reform is recognised both by the COPUOS and the Space Law Committee of the International Law Association. ILA Space Law Committee members do not support the adoption of a binding international convention: the “political climate” is not currently suitable.⁸¹ As a purely public international law instrument, even the updated Principles would not serve as an appropriate regulatory mechanism for commercial transactions relating to RS data. In this sense, it would nevertheless be useful for the COPUOS to reshape the definition of remote sensing used by the Principles to make this more precise and clear.

When contemplating other alternatives, a draft model convention under the aegis of UNIDROIT, mirroring the draft protocol on

⁷⁸ See e.g. SPOT Standard Licence, Non-Exclusive Licence to Use SPOT Satellite Products between SPOT Image and the End-User, above fn. 55.

⁷⁹ See U.S. Commercial Remote Sensing Policy.

⁸⁰ M. Gerhard, B. Schmidt-Tedd, *Regulatory Framework for the Distribution of Remote Sensing Satellite Data: Germany's Draft Legislation on Safeguarding Security Interests*, International Aeronautical Congress, 2005.

⁸¹ ILA Report 2006, at 10-11, above fn. 12.

matters specific to space assets within the Convention on International Interests in Mobile Equipment seems equally feasible. In this case, it should include a provision regulating issues surrounding intangible assets.

Taking this prototype solution one step further, UNIDROIT could be encouraged to work on a draft model law that encompasses at least the licensing issues.⁸² Given that few states have adopted a *lex specialis* relating to commercial remote sensing activities, the model law could be of great assistance to those nations currently in the process of shaping their remote sensing policies or drafting corresponding legislative acts. Adherence by national legislators to the provisions drafted by UNIDROIT experts would result in a degree of harmonisation between current approaches to licensing remote sensing activities and remote sensing data, without the constraints posed by the “hard-law” of an international convention.

ii. European level

The issues still unsolved at European level go beyond the task of harmonising the substantive law of the legal status of information and information products. The law is in a precarious state since the Database Directive and recent rulings on its exact parameters. These include matters of competition law in relation to licensing issues. Whether or not licensing of remote sensing falls within the exclusive, as opposed to joint or attributed competence of the EU and/or Member States requires to be assessed. Harmonisation in this field is not necessarily concomitant with the principle of subsidiarity.⁸³

A further issue remains that of regional regulation within the sphere of commercial remote sensing. Given the international spectrum of the remote sensing market, such an approach is unlikely to be sufficient.

CONCLUSION

The foregoing discussion serves to highlight the deficiencies, uncertainties and loopholes in relation to the current regulation of remote sensing, and its commercial side in particular. It

⁸² E.g. see UNIDROIT Model Franchise Disclosure Law, Rome, International Institute for the Unification of Private Law (UNIDROIT), 2004.

⁸³ L. Guibault, B.P. Hugenoltz, at 153, above fn. 37.

has examined examples of international and national rules in force in this area. If commercial space activities are to be increased and its key players encouraged to adopt a clear line towards value operated services, the legal parameters for such activities should be set on a clear new footing.⁸⁴

The paper proposes a concerted approach to regulating ownership of informational and information property rights in the face of commercial growth within this area. Security issues aside, a consolidated and coherent approach from within the international community would be seen to lend credibility to what continue to constitute important issues of rights of ownership, exploitation and access. The international community has a variety of regulatory tools available at its fingers, be they hard or soft law. Given the advantages of model laws on national governments as prototypes and legislative guidelines, a new UNIDROIT model law might proffer a timely benchmark for legal progress in what is otherwise an inconsistently regulated market that sways between serving public and private interests. It would also prove a response to a legal challenge that currently remains unanswered.

If only by way of conclusion, we refer to this challenge: *‘Whereas remote sensing technology has rapidly evolved, law-making has come to a halt’*.⁸⁵

This summarises and emphasises what is at stake and what can be done to regulate important informational, albeit at times sensitive, issues of national and international concern.

⁸⁴ Proceedings of the Canadian Standing Committee on Foreign Affairs and International Trade, February 3, 2005, at 9, 12, available at <http://www.parl.gc.ca/infocomdoc/38/1/FAAE/Meetings/Evidence/FAAEEV21-E.PDF>, last visited 17.08.2006.

⁸⁵ Dr. José Monserrat Filho, Introductory Report, in Report 2004, at 9, above fn. 11.