

A RIGHTLY BALANCED INTELLECTUAL PROPERTY RIGHTS REGIME AS A MECHANISM TO ENHANCE COMMERCIAL EARTH OBSERVATION ACTIVITIES

Catherine Doldirina, PhD candidate
McGill University Institute of Air and Space Law Montreal, Canada,
email: kdoldirina@yahoo.com

ABSTRACT

Earth observation by satellites is one of the developing sectors of space activities with the growing involvement of private capital or actors. This leads to the question of how efficient legal rules governing this activity are. Copyright law is one of the key fields of law applicable to earth observation activities and is the subject of the present analysis. This paper describes the current state of copyright regulations in different jurisdictions¹. It also addresses the issue of defining earth observation data for the purpose of applying copyright protection to them. Finally, it analyses whether more or less copyright protection would be beneficial for the commercialisation of the earth observation activities, and the distribution and further use of data they produce.

INTRODUCTION

Two thirds of all earth observation (EO) satellites launched in 2008 were commercial or civilian.² This trend signifies that EO activities are becoming more important, as the range of uses of EO data and information products derived from them becomes wider and more varied. Despite these *de facto* developments, the issue of appropriate regulation *de jure* for data use and distribution has not yet received enough discussion.

Since EO is an inherently international activity,³ and one of its key aspects is the use and distribution of the generated data, an appropriate data policy as well as a unified approach to the treatment of data and information products is crucial. Without the agreement on the major principles governing the issues of access to and use of EO data, the users will

have potential difficulties when working with data from various sources, and the generators might face the problem of setting up different licensing schemes depending on the regulatory regime in a state where they want to distribute the data.

As there is no international treaty governing EO activities, states have to adopt new or adapt old relevant rules themselves. Such practice may lead to disparities in the regulatory provisions across jurisdictions. This is true also for intellectual property law and especially copyright law: its norms, although not directly applicable to EO activities themselves, shape the relationships regarding the use and distribution of EO data.

The paper aims at giving an overview of how copyright law is or can be applied to EO data, what types of data can be protected by copyright, and to what extent. This is followed by an assessment of what approach regarding copyright (if any) is best suited for the commercialisation of the EO activities. Copyright law norms are assessed taking into account two factors: their potential to commercialise data analysis and the production of geographic information; and their ability to secure the widest possible flow of data and information. The rationale behind such a 'quest' is to find out which provisions of copyright law could foster the development of private EO activities, and alter their current institutionalised and mostly government-run nature. The analysis takes into account that turning EO activity into a commercially attractive enterprise should be beneficial for the society on the whole, and not just for the private interests behind it.

PART 1. COPYRIGHT AS IT IS

Existing Regime

Copyright is a field of law that has received quite substantial regulatory attention both at the international and national level. The main characteristic of copyright protection in any legal system is that it is always geographically limited to a nation state that adopts it.⁴ The result is that the

¹ The paper is largely based on my current doctoral research. Draft chapter on file with the author.

² Kucheiko, A. Earth Remote Sensing: Outcomes of 2008. *CNews R&D* (January 13, 2009) Online: <<http://cnews.ru/reviews/print.shtml?2009/01/13/334247>> (in Russian). All websites are last accessed March 22, 2010.

³ Since even if it is conducted by nationals of a particular jurisdiction, the satellites generate data over the territories of different countries, and the users of the generated data and information may be nationals of other states as well.

⁴ Art. 5(3) the Berne Convention (September 9, 1886) last amended September 28, 1979 [Hereinafter the Berne Convention]. See also e.g. §104 US Copyright Act. Title 17

works of authors of one country may not be protected at all within the territories of other states. The international conventions expand copyright protection beyond the borders of one state.⁵

International treaties

The most accepted and the oldest treaty laying down protection rules and principles is the Berne Convention on the Protection of Literary and Artistic Works of 1886.⁶ It establishes the national treatment principle regarding the regime of copyright protection: all authors whose works fall under its protection enjoy all the rights granted to the national authors in each of the countries of the Union.⁷ At the same time, the Berne Convention lays down the principle that the protection itself should be governed by the domestic law of the members of the Union. This is a very important rule that has a twofold effect. On the one hand, it enables states to decide to raise the level of protection above the minimum of the Berne Convention. On the other hand, it does not prevent states from enacting differing norms regarding the copyright protection: a situation that leads to disparities among the domestic regimes of copyright protection.

Another important mechanism of copyright protection is the World Intellectual Property Organisation Copyright Treaty of 1996⁸ that aims at complementing the regime of the Berne Convention⁹ with the norms that specifically address the issues that come with the digitisation of works, as well as with internet technologies. The WIPO Copyright Treaty granted the authors the new right of the communication to the public that addresses the distribution of the protected works over the internet and other comparable networks.¹⁰ It also obliges the

US Civil Code (October 19, 1976) Pub. L. No. 94-553. 90 Stat. 2541 as amended; Art. 1256 Russian Civil Code (December 18, 2006) *N 230-FZ (Φ3)* as amended.

⁵ Through the principle of national treatment Arts. 2(6) and 5(3) the Berne Convention.

⁶ Due to this characteristics of the Berne Convention as well as the complementarity of other international regulatory instruments in this sphere, like the Universal Copyright Convention of 1952, only the provisions of the former will be addressed in the article.

⁷ Art. 5(3) the Berne Convention. The Union “for the protection of the rights of authors in their literary and artistic works” is established in Art. 1.

⁸ Hereinafter the WIPO Copyright Treaty (December 20, 1996) 36 *ILM* 65.

⁹ The consistency of the WIPO Treaty with the regime of the Berne Convention is laid down in Art. 1.

¹⁰ Art. 8 WIPO Treaty.

states parties to introduce effective remedies against circumvention of the protected digitised works.¹¹

National regulations

Currently, 164 states are party to the Berne Convention,¹² which secures that the minimum copyright standards are the same across the globe. Nevertheless, partly because of the nature of international law, partly because of the differing legal cultures, there are certain particularities in national approaches to regulating copyright issues, especially in the civil law and common law countries.

This paper uses the copyright legislation of several states – the United States of America (US),¹³ Germany,¹⁴ the United Kingdom (UK),¹⁵ the Russian Federation (Russia),¹⁶ Canada¹⁷ and France¹⁸ – because these states represent different legal traditions, and because they are involved in remote sensing activities. Provisions of the national regulations will be mentioned if they extend the scope of the Berne Convention, as well as to show the differences among them.

Protection Offered: What, Why, How

Since copyright protects intangible property, it only exists within the boundaries of the law that lays down the regime. This means that the author or any other rightholder cannot have more rights than are given to him by law. Such restriction affects the debate regarding application of copyright protection to new types of potentially protected subject-matter.

There are key characteristics of copyright protection regime, which distinguish it from other intellectual property protection types, like patents and trademarks. Firstly, the objects that fall under the copyright protection are works of authorship, in the sense that they represent author’s original expression of his ideas. Secondly, the availability of copyright protection is not linked to any registration formalities.

¹¹ Art. 11 WIPO Treaty.

¹² WIPO information. Online: <http://www.wipo.int/treaties/en/ShowResults.jsp?lang=en&treaty_id=15>.

¹³ The US Copyright Act.

¹⁴ Urheberrechtsgesetz (September 9, 1965) *BGBI. I S.* 1273 as amended [hereinafter German Copyright Law].

¹⁵ UK Copyright, Designs and Patents Act 1988. C 48 as amended.

¹⁶ Part Four Russian Civil Code.

¹⁷ Canadian Copyright Act. R.S. 1985 c. C-42 as amended.

¹⁸ French Intellectual Property Code. Law No. 92-597 (July 1, 1992) as amended.

Thirdly, the structure of protection granted encompasses exclusive economic rights enforceable for a limited time, limitations to them, and moral rights.

Subject-matter

According to Article 2 of the Berne Convention copyright protection encompasses “literary and artistic works”. The Berne Convention only lists some examples, providing for as inclusive a protection as possible. Following this tradition, existing national legal instruments of copyright protection¹⁹ contain long open lists of protected works, as it is hard to imagine what new creations may be protected in the future.

Traditionally, according to both norms of international treaties and national law, only the form or expression of a work is protected, and not the ideas that underlie it.²⁰ Reinforcing this principle, the WIPO Copyright Treaty explicitly excluded ideas, processes, methods of operation, and data from the scope of copyright protection.²¹

The absence of a closed list of protected subject-matter allows states to specify works of authorship that are protected due to tradition, to a political decision or to other considerations. For instance, the French Copyright Code lays down that designer clothes are works of authorship.²²

Criteria of protection

Copyright is the most ‘liberal’ type of intellectual property protection, as it has only two criteria – creativity and fixation – fulfilment of which grants a work protection. Regarding the fixation criterion, Article 2(2) of the Berne Convention leaves to the discretion of the members of the Union to link the availability of the copyright protection to the material fixation of a work. For instance, the US Copyright Act determines that a work is created when it is “fixed in a copy ... for the first time”.²³ The Russian Civil Code also states that a work should be in an “objective form”.²⁴ The German Copyright Law does

not link fixation to the creation and mentions it only when stating that the exploitation rights cover the material copies of a work.²⁵ The Canadian Copyright Act determines that some works (like phonograms)²⁶ have to be fixed, but others (e.g. literary works) do not necessarily need to be.

With regard to the second criterion of creativity, Article 2 of the Berne Convention adopted the ‘creator doctrine’²⁷ by which a work, to be eligible for protection, should be an intellectual creation.²⁸ Copyright protects culture and creativity, not innovation. This is its main difference from patent or trademark protection that applies to ‘inventiveness’ and ‘novelty’, whereas copyright covers intellectual works which do not necessarily have a utilitarian function.

Although the members of the Berne Convention Union have adopted the creativity criterion, it received a somewhat different interpretation in different jurisdictions. In the civil law system creativity reflects personality of the author,²⁹ and his personal input in making a work. In the common law countries it is rather the investment of “skill, judgment and labour” or “selection, judgment and experience.”³⁰ Nevertheless, this distinction is not very vivid, and even in the US, after the Feist case³¹ labour is not seen as an independent criterion of copyright protection.³² In Europe, the UK and Ireland, as well as some Scandinavian countries had to increase their thresholds of copyright protection

²⁵ §15(1).

²⁶ See e.g. the definitions of ‘computer program’, ‘dramatic work’ and ‘sound recording’ Sec. 2.

²⁷ 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. Online: <<http://www.ivir.nl/publications/other/final-report2002.pdf>>.

²⁸ Art. 2(5) Berne Convention. See also Art. 1(3) EC, Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs [1991] *OJ L* 122 at 42-46 [hereinafter Computer Programmes Directive]; §2(2) German Copyright Law; Section 1(1)(1) UK Copyright, Designs and Patents Act; §102(a) US Copyright Act

²⁹ See e.g. §2(2) German Copyright Law: protected works should be personal intellectual creations (WIPO translation. Online: <http://www.wipo.int/clea/en/text_html.jsp?lang=EN&id=1008>).

³⁰ ‘Original’ being something that is not copied.

³¹ Feist Publications, Inc., v. Rural Telephone Service Co, 499 U.S. 340 (1991).

³² Creativity as a sine qua non condition of protection, *Feist Case*, II A.

¹⁹ The US Copyright Act, German Copyright Law, UK Copyright, Designs and Patents Act and French Intellectual Property Code all serve as good illustrations.

²⁰ See e.g. §102 (b) US Copyright Act.

²¹ Articles 2 (general), 5 (with regard to databases) WIPO Copyright Treaty.

²² Art. L. 112-2(14).

²³ §101 – the definition of ‘created’.

²⁴ Art. 1256.

during the course of copyright law harmonisation within the European Union.³³

Scope of protection

As the German Copyright Law neatly formulates in its paragraph 11, “copyright shall protect the author with respect to his intellectual and personal relationship with his work, and also with respect to utilisation of his work.”³⁴ For this purpose copyright has two sets of rights – moral (author’s rights) and economic (exploitation rights).

Moral rights include the right to protect the integrity of a work,³⁵ the right to claim authorship of the work,³⁶ the right to authorise the first publication,³⁷ although this right can be considered a borderline right between moral and economic rights. Moral rights cannot be transferred and have limited waivability.³⁸

The economic rights are quite broad and their essence is in the exclusive right of the author or a rightholder to prohibit or authorise certain actions with regard to the protected works. They include the right of reproduction,³⁹ the right of the communication to the public,⁴⁰ the right of distribution,⁴¹ the right of translation and adaptation. These rights are subject to licensing and other forms of transfer.

³³ See e.g. sec. 1(1)(1) UK Copyright, Designs and Patents Act.

³⁴ WIPO translation. Online: <http://www.wipo.int/clea/en/text_html.jsp?lang=EN&id=976>.

³⁵ §106a US Copyright Act (for audiovisual works); §14 German Copyright Law (for all works); Art. 1255(2)(1)(4) Russian Civil Code.

³⁶ §13 German Copyright Law; Arts. 1255(2)(2), 1265 Russian Civil Code.

³⁷ §12 German Copyright Law; Arts. 1255(2)(5), 1266, 1268 Russian Civil Code.

³⁸ §29 German Copyright Law; Art. 1265(1) Russian Civil Code.

³⁹ Art. 2 EC, European Parliament and of the Council Directive 2001/29/EC of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society [2001] *OJL* 167 at 10-19 [hereinafter Information Society Directive]; §106 US Copyright Act; §§15(1), 16 German Copyright Law; Art. 1270(2)(1) Russian Civil Code.

⁴⁰ Art. 3 Information Society Directive; §106 US Copyright Act; §§15(2), 19a German Copyright Law; Art. 1270(2)(11) Russian Civil Code.

⁴¹ Art. 4 Information Society Directive; §106 US Copyright Act; §§15(1), 17 German Copyright Law; Art. 1270(2)(2) Russian Civil Code.

Since copyright protects the expression, but not the actual content of a work, it has a mechanism of exceptions,⁴² or fair use⁴³ that allows users of works to utilise them without author’s permission.⁴⁴ Most of such allowed acts relate to archiving of works by libraries, research, teaching, as well as news reporting and parody. The importance of these provisions within the overall framework of copyright protection lies in their purpose: to ensure the access to existing works, to sustain the public domain and to facilitate exchange of ideas to create more works.

PART 2. EARTH OBSERVATION DATA: IS THERE A PROBLEM?

Now that the main and peculiarities and provisions of copyright protection have been highlighted, it is time to turn to EO data as its possible subject-matter. This section addresses the characteristics of EO data to see whether they can potentially be protected by copyright. The main issue to bear in mind in this regard is the creativity as the main criterion of copyright protection.

Definition of Data

A normative definition of data in general and of EO data in particular would serve as the best guidance for the assessment of applicability of copyright protection to them. Several definitions can be found in both international and national regulations.

Principle I of the United Nations (UN) Principles Relating to Remote Sensing of the Earth from Outer Space⁴⁵ divides EO data into three distinct categories depending on the degree of processing: ‘primary data’, ‘processed data’ and ‘analysed information’; ‘primary data’ being raw data transmitted by satellites to the ground stations. Although not all the provisions of the document are binding upon states, it may serve at the very least as a guide to uniform terminology in the field of EO activities.

The definition of EO as an activity in the US Land Remote Sensing Policy Act – “the collection of data which *can be processed into imagery* of surface

⁴² §§44a-53a German Copyright Law; Arts. 1273-1280 Russian Civil Code.

⁴³ §107 US Copyright Act; Chapter III UK Copyright, Designs and Patents Act.

⁴⁴ Regulated in Arts. 10, 10bis of the Berne Convention.

⁴⁵ G.A. Res. 41/65 Annex. U.N. Doc. A/41/751 (1986) [hereinafter UN Remote Sensing Principles].

features of the Earth”⁴⁶ – suggests that before EO data become images or maps, or parts of geographic information systems (GIS), they have to be processed. This step may grant them copyright or other forms of intellectual property protection. The definition of the raw (‘unenhanced’) EO data suggests that the Act supports this interpretation.⁴⁷ The US rules are similar to the regime of the UN Remote Sensing Principles. The Canadian legislator, having very close ties to the US, especially in regulating space activities, also differentiates by the level of processing between ‘raw data’ on the one hand, and ‘remote sensing product’ on the other.⁴⁸

The legislators in Europe have a somewhat different approach. The Russian Resolution on the Order of Acquisition, Use and Provision of Geo-Spatial Information⁴⁹ defines all EO data as ‘primary data’ of the UN Remote Sensing Principles. It also specifies that EO data is part of the concept of geospatial information. Paragraph 2 of the German Satellite Data Security Law⁵⁰ defines ‘data’ as signals of satellite sensors and all products derived from them, notwithstanding the level of processing and the mode of their storage or presentation.⁵¹ Therefore, the European legislators, unlike the US, do not differentiate between raw and processed EO data. Whether such definitional differences have any implications for the application of copyright law to EO data remains to be seen.

Methods of EO data generation

EO data are generated by special satellites and depict the surface of the earth and its depths, oceans and other natural or man-made objects. The satellite operator sends a command to the satellite, which transmits the coordinates of the place to be sensed. When this geographic area is in the range of the satellite’s vision, EO is done. After this, the satellite sends the acquired data (usually as a binary code) to a ground station, where the initial processing takes place. It is only after this that EO data may be made

⁴⁶ Sec. 2 US Land Remote Sensing Policy Act of 1992 H.R.6133. Emphasis added.

⁴⁷ Sec. 2 (13) Land Remote Sensing Policy Act: raw remote sensing data consist of “signals or imagery products that are unprocessed or subject only to data preprocessing”.

⁴⁸ Sec. 2 Canadian Remote Sensing Space Systems Act. S.C. 2005, c. 45.

⁴⁹ No. 326 of 28.05.2007, sec. 2 [hereinafter Remote Sensing Resolution].

⁵⁰ Satellitendatensicherheitsgesetz. G. v. 23.11.2007 *BGBI. I S.* 2590.

⁵¹ Author’s own translation.

available to the customer, archived, or further processed.

The process itself reveals key features of EO data that may influence applicability of copyright protection. Firstly, raw EO data are generated by an automated process: special satellites sensors record information about the earth and send it to the receiving stations on the ground by means of telemetry. Secondly, EO data are a reflection of reality: satellites cannot think anything up, and only fix signals reflected by earth surface. Thirdly, without any processing, raw EO data are not comprehensible.

Processing is required to make raw data usable.⁵² Often for practical and economic reasons, EO data correction, classification and interpretation involve use of computer algorithms.⁵³ To make corrections some *in situ* data⁵⁴ must be manually introduced to the computer algorithm. For example, exact geographic coordinates are used as a model on which EO data are layered in order to correct them, so that they match the exact geographic location of a sensed territory.

A sufficient degree of processing transforms EO data into analysed information.⁵⁵ Processing at this stage is made by virtue of “interpretation of processed data, inputs of data and knowledge from other sources,”⁵⁶ which usually requires a specialist with expertise in the field of analysis. Moreover, it involves the use of knowledge from other fields of expertise. The data manipulations depend very much on the anticipated results, as the same raw and processed EO data can be used to produce information serving different purposes. As there are multiple applications for which EO data can be used, it is hard to determine what degree of processing transforms mere data into information. What is clear, though, is that raw and initially processed EO data in no way represent information.

Modes of EO data use

For certain uses or applications EO satellites are a unique source of information that cannot be

⁵² UN Remote Sensing Principles.

⁵³ Raber, G. Tullis, J. & Jensen, J. Remote Sensing Data Acquisition and Initial Processing (2005) XIV: 5 *Earth Observation Magazine* online:

<http://www.eomonline.com/EOM_Jul05/article.php?Article=department3> (last accessed 01.10.2008).

⁵⁴ Collected by terrestrial or aerial sensors.

⁵⁵ In the terminology of the UN Remote Sensing Principles; terms used in national regulations do differ.

⁵⁶ Principle I Remote Sensing Principles.

substituted by information gathered by any other means. It is due to some important characteristics of EO data. Only satellites can provide an exhaustive view of vast areas that is not limited by political or administrative restrictions. Data for the same area can be acquired at a high rate of repetition without weather-related restraints,⁵⁷ which means that comparison of the data acquired at different times will reveal changes that might have occurred in a given area. In addition, EO data can be recorded in various wavelengths – visible and non-visible – which provide the opportunity to assess the same natural phenomena using different parameters.

EO data and derived information products can and are being used in different industries,⁵⁸ like the energy sector,⁵⁹ forest management and exploration of minerals resources. They may be also beneficial for different spheres of health care,⁶⁰ as well as part of GIS for the purposes of decision-making at all government levels, cadastre maintenance, geographic engineering, sustainable agriculture, as well as such economic purposes as marketing.

Whether the benefits from the use of EO data can be maximised in different fields of their potential application depends largely on the protection of the data on the one hand, and their availability for value-adding uses on the other.

Copyright: a Well-Tailored Suit?

Keeping the key characteristics of EO data in mind, as well as their legal definitions, it is time now to assess, whether, how and why copyright can be applied to them. Processing data plays a key role in this analysis.

⁵⁷ In case of radar remote sensing.

⁵⁸ See examples in *Imagery Requirements Now and in the Future* ASPRS presentation to the National Oceanic and Atmospheric Administration Advisory Committee on Commercial Remote Sensing (October 7, 2008) online: <http://www.nedi.gov/files/ASPRS_User_Community_Needs_Breif.pdf>.

⁵⁹ See Zell, E. et al. Application of Satellite Sensor Data and Models for Energy Management (2008) *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* 1:1.

⁶⁰ E.g. for mapping vectors of the spreading of infectious diseases.

Primary EO data

The WIPO Copyright Treaty excludes data from the scope of copyright protection.⁶¹ The distinction that both the US Remote Sensing Act and the UN Remote Sensing Principles make with regard to raw and other types of EO data may be interpreted as an implicit recognition of the obligation not to protect data under the WIPO Copyright Treaty.

As mentioned earlier, the German legislator does not make a distinction between raw and processed EO data. Nevertheless, the provisions of the German Copyright Act will apply to the data, as paragraph 3(3) of the German Satellite Data Security Law states that enforcement of other laws potentially applicable to EO data should not be affected by its provisions. Therefore, according to paragraph 2(2) of the German Copyright Law,⁶² which defines a copyrighted work as “author’s personal intellectual creation,”⁶³ copyright protection for primary EO data should be denied.

The same logic should be followed when assessing copyright claims over primary EO data by their generators in other jurisdictions, may it be by the European Space Agency (ESA), Eumetsat, SPOT Image or any other commercial EO system owners or operators. The relevant national or international copyright rules should apply and if they explicitly state that creativity is the only criterion that triggers copyright protection, then as unfortunate as it may seem to EO data generators, raw EO data will remain unprotected by this mechanism.

Processed data and analysed information

Copyright protection may be suitable for EO data that are processed or turned into information products for several reasons. First of all, they contain information and are therefore immaterial goods that copyright potentially protects. Secondly, a lot of geographic information products are creations. Thirdly, even in cases where there is a doubt with regard to the fulfilment of criteria for protection, their flexibility may be interpreted in such a way as to grant protection to the owner of such an information product.⁶⁴

Processed data or analysed information most certainly do fall under the copyright protection, as

⁶¹ Arts. 2, 5.

⁶² German Copyright Law.

⁶³ Author’s own translation.

⁶⁴ Which would be harder to do with e.g. interpreting far more objective criteria for patent protection.

most of them result from the analysis of the primary data by humans. First of all, processing EO data and production of analysed information requires knowledge from different fields. Secondly, it is not a fully automated process: it is the specialist in charge who produces the desired results.⁶⁵ Thirdly, the definition of a copyrightable work includes maps⁶⁶ and other images and thereby also processed data or analysed information generated through human creativity.⁶⁷

The same considerations apply to databases that contain both raw and processed EO data, as well as geographic information. They are eligible for protection if they fulfil the criterion of creativity. If not, protection cannot be granted. Although most of the spatial data databases, including those arranging EO data, are set up following more utilitarian rather than creative principles, copyright protection cannot automatically be denied.

PART 3. PROTECTION: VERSUS OR WITH COMMERCIALISATION?

Scenario 1: More Protection

“Stretching” copyright is a trend that started with deciding in favour of copyright protection of computer programmes about 20 years ago⁶⁸ and has continued with the adoption of the WIPO Copyright Treaty and national regulations implementing it. In addition, the *sui generis* database protection was introduced in Europe.⁶⁹ Moreover, licensing is often used by different producers of information goods as a mechanism to ‘adjust’ copyright to their own needs. This section analyses whether such an approach contributes to a wider (commercial) use of EO data and information products.

⁶⁵ See e.g. details regarding processing in *Transforming Remote Sensing Data into Information and Applications* (National Academies Press, 2001) 16. Online: <<http://www.nap.edu/catalog/10257.html>>.

⁶⁶ See e.g. *Stadtplanwerk* BGHZ 139, S. 68; *NJW* 1998, S. 3352, reconfirmed in I ZR 227/02 *GRUR* 2005, S. 854.

⁶⁷ West, J.R., note 37 referring to the United States’ submission at the UN COPUOS stating that enhanced data being the product of the analyser should be considered his property. See UN COPUOS, Report of the Scientific and Technical Sub-Committee on the Work of its 15th Session (1978) U.N. Doc. A/AC.105/216 at 8.

⁶⁸ E.g. Computer Programmes Directive.

⁶⁹ EC, European Parliament and the Council Directive 96/9/EC of 11 March 1996 on the legal protection of databases [1996] *O.J. L 77/20* at 20-28 [hereinafter Database Directive].

More rights

The licences of EO data and information products generated by commercial players stipulate that they retain the ownership over the licensed data.⁷⁰ Apart from the intellectual property rights vested in the EO data and information, licensors usually remain owners of the physical copies of the licensed products.⁷¹ The licences grant non-transferable, non-exclusive limited rights to use the EO data or information.⁷²

According to some licences, the data or products are trade secrets, and the licensee agrees to protect them as such.⁷³ In addition, all the licences contain clauses called “permitted uses” – a closed list of actions that the licensee is allowed to perform with regard to the licensed EO data or information products – normally for the licensee’s internal purposes only.⁷⁴

Such practice is in contradiction with traditional copyright law protection, as it arbitrarily expands its scope. Copyright law never associates copyright in a protected work with the ownership of the actual physical copies of it.⁷⁵ Some national laws expressly state that these two concepts – rights in a work and rights in the copy of the work – are distinct from each

⁷⁰ E.g. Art. 3 Non-Exclusive License to Use SPOT Satellite Products Between SPOT Image Corporation and the End-User (January 2008) [hereinafter SPOT Image Licence]. Online:

<http://www.spotimage.fr/automne_modules_files/standard/public/p1427_9d709b1bd850b040110d9d66db425dd2mult-i-eulaSpot_010108.pdf>.

⁷¹ “No CLIENT shall be able to claim an exclusive right of use on the PRODUCT” – SPOT General Supply Conditions of Satellite Imagery Products (January 2008). Online:

<http://www.spotimage.fr/automne_modules_files/standard/public/p1547_12d17ab018286bc20294ba4d7a904989supply_conditions_2008.pdf>; part 2.1 “License to Use” the Eurimage Standard Terms and Conditions of Licence [hereinafter Eurimage Licence] (March 2009). Online: <http://www.eurimage.com/products/docs/standard_terms.pdf>; part 3 of the GeoEye Data Single or Multiple Organization License [hereinafter GeoEye Licence]. Online:

<http://www.americaview.org/docs/GeoEye_SingleOrganization_license.txt>. Note that no licences are available from the Geoeeye website <www.geoeeye.com>.

⁷² 2.1. SPOT Image Licence, 2.1. Eurimage Licence, 4 GeoEye Licence.

⁷³ 2.2. SPOT Image Licence, 2.4. Eurimage Licence.

⁷⁴ 4(b)(d) GeoEye Licence; 2.1(a)(b)(c)(e) SPOT Image Licence; 2.1(a)(b)(d) Eurimage Licence.

⁷⁵ See §17 German Copyright Law: it allows further distribution of the copies of works that were legitimately authorised for distribution without addition consent of the rightholder.

other.⁷⁶ Inserting licensing clauses that go against this fundamental principle of copyright protection is against the spirit of copyright law.

More content protection

One of the major difficulties with the application of copyright protection to EO data and information is that very often it is not the expression of the data and information products that their generators want to protect, but the actual content – information about the earth as captured in a particular dataset.

EO data generators already have certain mechanisms to protect the content of their data and information. According to Article 11 WIPO Copyright Treaty they can build in the digitised data and information technological protection measures that prohibit users from doing with them anything not otherwise authorised by the author or other rightholder.

In addition to these legislative measures and remedies, the licences can restrict the distribution of ‘derivative works’ made by licensees that contain pixels of the “source image data” by making these dependent on the copyright and licence restrictions of the source data.⁷⁷ Distribution of the derivative works that do not contain imagery from the licensed data is, as a rule, not restricted. Also, the SPOT Image license for instance forbids the licensee from distributing directly or indirectly any derivative works on the territory of Canada.^{78s}

In Europe, further issues regarding content protection stem from the *sui generis* database right established by the European Database Directive. Its Article 7(1) states that *sui generis* database right forbids any database user from extracting or re-utilising “the whole or of a substantial part ... of the contents” of a protected database. Due to the ambiguities in the interpretation of the Database Directive, the actual object of the *sui generis* database protection becomes even more difficult, as the definition of the database contents is given through the term “data” which in its turn is defined through “informative content.”⁷⁹

⁷⁶ See §202 the US Copyright Act.

⁷⁷ E.g. GeoEye License.

⁷⁸ 2.1(i) SPOT Image Licence.

⁷⁹ On the one hand, it is suggested that ‘information’ should interpreted as widely as possible, see e.g. Hugenholtz, B. The New Database Right: Early Case Law From Europe. *Ninth Annual Conference on International IP Law & Policy* (Fordham University School of Law, April 19-20, 2001). Online: <<http://www.ivir.nl/publications/hugenholtz/fordham2001.html>> quoting European Commission’s Explanatory

Outcome

Examples of legal rules and practices shown in this sub-section lead to commodification of information in general and EO data in particular. Moreover, such regulatory and licensing practices narrow down the ways in which EO data and information can be used. All this slows down development of the value-adding activities, through which most of EO data and information are made useful and the distribution of information truly commercialised.⁸⁰

Scenario 2: Less Protection

Surprisingly or not, but together with the regulatory trends of tightening copyright protection, activities preventing locking up works of authorship, as well as traditionally unprotected subject-matter were initiated. One of the examples is the development of the open source software,⁸¹ another – very closely linked to it – copyleft licensing.⁸² Both aim at enhancing the public domain and at making as much information as possible available to those in need of it. Whether these strategies could be applied to the distribution and use of EO data is assessed below.

The public domain

The public domain is a ‘space’ where intellectual property rights do not apply to works either because the protection has expired, or because the objects were never owned.⁸³ Like the regime of the

Memorandum. On the other hand, the Database Directive should not protect information as such, as per Advocate General. Opinion Case C-203/02, para 34.

⁸⁰ See e.g. findings in Keith, A. Earth Observation Remote Sensing Trends. Euroconsult presentation to the NOAA Advisory Committee on Commercial Remote Sensing (October 7, 2008) slide 20. Online: <http://www.nedi.gov/files/Euroconsult_Presentation_on_industry_trends.pdf>.

⁸¹ See Gay, J. ed. *Free Software, Free Society: Selected Essays of Richard M. Stallman* (GNU Press: Boston, 2002).

⁸² E.g. GNU Free Documentation Licence (November 2008). Online: <<http://www.gnu.org/copyleft/fdl.html>>. See also van Eechoud, M. & van der Wal, B. *Creative Commons Licensing for Public Sector Information: Opportunities and Pitfalls* (Institute for Information Law, 2007). Online: <http://www.ivir.nl/publications/eechoud/CC_PublicSectorInformation_report_v3.pdf>.

⁸³ Boyle, J. *The Public Domain: Enclosing the Commons of the Mind* (Yale University Press: New Haven & London, 2008) 38.

commons, it can be established voluntarily, when the authors or rightholders decline to exercise some of the rights over their works in order to provide others with the opportunity to re-use them.⁸⁴

The public domain, as well as the commons, is a regime that is created to oppose the logic of control when regulating the issues of access to and use of works. It reflects their nature and the precondition of availability of access rights to create new works.⁸⁵ It is also true for the creation of information products, including EO information. For instance, it is impossible for a market player who does not possess EO satellite capabilities but only has licensed-restricted access to EO data or information, to produce and sustain a GIS.

A good example of an open access practice regarding EO data and information is the policy of the US to release all government-generated EO data at the cost of fulfilling the user request and without restrictions with regard to its possible further uses.⁸⁶ Not long ago, the Group on Earth Observation (GEO) announced that the Landsat EO data will be available on such conditions world-wide.⁸⁷ In addition, more EO missions launched by governments today or planned seek to commercialise the generated data by initially offering it at low cost or for free.⁸⁸ Although access to EO data at minimum or no cost may seem problematic, in the long-term perspective it facilitates the development of the market of the value-adding activities, which should compensate the initial compromise allowing the free access.

Freedom to make derivative works

The development of secondary markets of value-adding activities is indispensable for a more extensive use of EO data and a full realisation of their value.⁸⁹ The deployment of copyleft-type licences could facilitate it, especially in commercial sectors of utilisation of EO data and information like climate change research that are not yet viable. The key

⁸⁴ See Boyle, J. *ibid.* 65 ff.

⁸⁵ See Besser, H. *Commodification of Culture Harms Creators* (American Library Association, 2001). Online: <<http://www.gseis.ucla.edu/~howard/Copyright/ala-commons.html>> (last accessed 25.02.2009).

⁸⁶ Sec. 105(a) the US Land Remote Sensing Policy Act.

⁸⁷ GEO Press Release (November 20, 2008) online: <www.earthobservations.org/.../pr_0811_bucharest_landsat.pdf>.

⁸⁸ See Keith, A. *ibid.* slide 20.

⁸⁹ See e.g. Ryerson, B. *A Realistic Perspective on Earth Observation Data Policy. Canadian Space Summit* (November 21-23, 2008). On file with the author.

clause that these licences should contain is the authorisation to produce *and*⁹⁰ further distribute derivative products made by processing licensed data and information.

Such an approach would only reinforce the existing copyright rules regarding derivative works: they enjoy copyright protection independent from that of the original work, provided that the authorisation to make derivative works was granted.⁹¹ A derivative work, being an author's own creation, is always based on one or more pre-existing works, and may be created through different acts, such as translation, arrangement, reproduction or any other form in which a work may be transformed or adapted.

Most of the information products based on the licensed EO data and information will qualify as derivative works. Therefore, the licensee will be entitled to distribute them as one of the author's economic rights. But if this only happens in theory, the value-adding activities, in which normally any licensee is engaged, become hard to pursue if they are prohibited in practice by restrictive licence conditions. Fortunately some example do exist in practice, for instance the data generated by China-Brazil Earth Resources Satellites (CBERS) can be received by the authorised ground stations and there are no restrictions upon their further use and distribution, apart from the recommendation to adhere to the free data distribution policy.⁹²

Outcome

Users' rights are an equally important part of the overall copyright protection regime to the rights of authors. Information, being an intangible good, cannot be concealed unless kept absolutely secret. Once communicated, no one can prevent its users

⁹⁰ As was mentioned earlier, almost all commercial licences do allow production of derivative products, but limit their use for internal purposes only, with some exceptions.

⁹¹ See e.g. definition of the 'adaptation' in Sec. 20 UK Copyright, Designs and Patents Act; of the 'Bearbeitungen' (adaptations) in §23 German Copyright Law; of the 'derivative work' in §§101, 103 US Copyright Act.

⁹² CBERS Data Policy (November 2004). Online: <www.obt.inpe.br/cbers/documentos/appl_07_2004.pdf>; CBERS Complementary Protocol on CBERS Application System (November 2004). Online: <www.obt.inpe.br/cbers/documentos/appl_01_2004.pdf>.

See also Bacellar, J. *CBERS-2B: Updates on International Ground Stations. CEOS Working Group on Calibration and Validation Plenary* (September 2008). Online: <wgcv.ceos.org/docs/.../INPE_International_GroundStations_Leila.pdf>.

from utilising the ideas it contains and making them part of their own works. The EO data market is based on delivering useful information goods to various customers, and will not develop without this important feature. Therefore, the users of EO data and information should be able to enjoy their rights under the traditional copyright regime.

CONCLUSIONS

EO data and information become indispensable for carrying out a lot of activities, and therefore need to be properly protected. Copyright is not the best mechanism for protecting primary EO data, but it is suitable for processed EO data and analysed information. It should be stressed that copyright never protects the content of a work, but solely the author's original expression of the ideas that underline it.

In order to facilitate the development of commercial EO satellite systems, as well as of data value-adding services, a proper balance of the interests of the different players should be found. Too much protection leads to locking up of valuable EO data, while too little protection may become a hindrance to the launch of new EO satellites.

Many specialists in the field agree that a good data access policy is crucial for further development of EO data and information market.⁹³ Apart from the important factor of lower prices for EO data,⁹⁴ such policies should also stipulate that data users have broader rights with regard to the results of their processing and value-adding activities.

To achieve this, the generators of EO data and information do not have to abandon their rights, but to use them without restricting the rights of others. If the value-adding actors refuse to buy EO data, it is hard to imagine how the EO activities will develop further.

⁹³ E.g. Ryerson, B. Making Remote Sensing Operational: A Changing World Requiring Changing Approaches to Data Policy. *The First International Symposium on Cloud-prone and Rainy Areas Remote Sensing* (Hong Kong October 6-8, 2005); Harris, R. & Browning, R. *Data Policy Assessment for GMES: Draft Final Report* (University College London, 2003). See also Smith, L.J. & Doldirina, C. Remote Sensing Data: Some Critical Comments on the Current State of Regulation and Reflections on Reform. *IISL/ IAF Proceedings of the 49th. Colloquium on the Law of Outer Space* (2007).

⁹⁴ EOPOLE. Earth observation data policy and Europe. *Final Report ENV4-CT98-0760* (European Commission, Brussels, 2000).

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