



CV of René Alex GOMMES

Agricultural meteorologist

Specialist in the quantitative assessment of weather and climate impact on agriculture, with a particular interest in yield and production estimates, climate change, crop insurance and food security.

I. SUMMARY

After a degree in botany (1972) and a doctorate in bio-geochemistry (1977, University of Liege, Belgium, and EC Joint Research Center at Ispra, Italy), I worked for the World Meteorological Organization (WMO) as a data processing specialist in a regional African crop monitoring program in Algeria (1978-79). Since then, my interest has gradually shifted to agrometeorology, after joining the UN Food and Agriculture Organization (FAO) as an agroclimatologist in a food security project in Tanzania (1980-85). In 1986, I moved to FAO headquarters in Rome, where I have been the Coordinator of the Agrometeorology Group of FAO from 1994, then (from 2008) the Leader of the "Climate impact team" after FAO established the Climate, Energy and Land Tenure Division. In 2010, I left FAO and took up a position as a senior scientist in the FoodSec Unit at the EC Joint Research Center at Ispra, where I have been working mainly on crop insurance in Ethiopia. In January 2013, I joined Prof. Wu Bingfang's CropWatch unit at the Remote Sensing and Digital Earth Institute (RADI) at the Chinese Academy of Sciences in Beijing, as a visiting Professor.

My experience covers the technical/scientific, operational and institutional aspects of crop forecasting for food security, market planning and crop insurance, including international contacts and scientific collaboration, the organization of international technical meetings and training at various levels, from field observers to university.

I have traveled to, and worked in about 85 countries world-wide.

Visit my blog: gomm.es.net/wergosum
CropWatch website: <http://www.cropwatch.com.cn/>

II. BIODATA AND LANGUAGES

Born: 29 March 1950 in Faymonville (Province of Liège), Belgium.
Citizenship: Belgium
Family status: Married, two sons & one step-daughter

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Languages: completely fluent in English, French, German (mother tongue) and Italian. Basic Dutch and Spanish. Good Esperanto.

III. EDUCATION

1962-1968: secondary school education at the Athénée Royal de Malmédy, Belgium

1968-1970: Candidature in biological sciences at the University of Liège, Belgium, with “Distinction.” Main subjects: calculus, statistics, inorganic and organic chemistry, physics, geology, mineralogy, crystallography, general biology, zoology and botany.

1970-1972: Licence in plant science State University of Liège University of Liège, with “Grande distinction.” Main subjects: plant geography, climatology, pedology, general ecology and plant ecology, plant physiology, advanced statistical methods. Thesis on the use of two submerged aquatic plants as pollution bio-indicators in fresh water bodies.

1973, Certificate in Computer Science, Conservatoire des Arts et Métiers (France).

1972-1977: Doctorate in plant ecology (phyto-geochemistry) at the Joint Research Center of the EC at Ispra (Italy) and University of Liège, with “Plus grande distinction.” Thesis on the heavy metal eco-physiological modeling of aquatic plants in lake Maggiore (Italy).

IV. EMPLOYMENT RECORD

201301-Present: Visiting professor at the Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, CropWatch unit.

Main activities: advisor to the CropWatch unit that produces the global CropWatch crop monitoring bulletin (<http://www.cropwatch.com.cn/>).

201206-201212: consultant in crop-climate interactions

Main activities: consultancies for EC/JRC on crop insurance and to FAO climate change impact project in the Philippines.

2010-201205: Senior Scientist Grantholder, Monitoring Agricultural Resources Unit (MARS/FoodSec), European Commission Joint Research Center, Ispra, Italy.

Main activities: weather risk assessments and development of yield-weather indices for crop insurance in Ethiopia, under a collaborative project between UC Davis, Univ. Athens, FAO, EAE and JRC.

1994-2010: Coordinator, Agrometeorology Group, then Team leader, Climate impact Team, Climate, Energy and Tenure Division, Natural Resources Management and Environment Department, FAO/Rome

Main activities: administrative and technical coordination of the Team (staff: 9 scientific staff and 2.5 general-service). The ratio of administrative to technical work is about 30/70.

The activities of the Team included mainly the development and implementation of methods to assess the impact of climate variability and change on crop production and on food security; technical responsibility for a number of projects dealing with climate, disaster preparedness and warning, food security, crop monitoring and forecasting. The activities cover the project cycle, i.e. identification, formulation, technical assistance and evaluation; national and regional agroclimatic studies, in collaboration with national and regional institutions; international cooperation in the area of agrometeorology and climatology (WMO, IPCC/UNFCCC, CGIAR centres etc.)

1986-93: Agroclimatologist in the FAO Remote Sensing Center, Research and Technology Development Division, Rome

Main activities: Agrometeorological crop monitoring in western, eastern and southern Africa for food security in the ambit of the Global Information and

Early Warning System on Food and Agriculture (GIEWS); project preparation and monitoring, and technical back-stopping of field experts (agrometeorologists in national Early Warning projects and agroclimatologists in Land Use Planning projects); software development and maintenance of FAO's agroclimatic data base.

1980-85: Agrometeorologist in the FAO Tanzanian Crop Forecasting and Early Warning project, Dar Es Salaam, Tanzania.

Main activities: Development of crop data collection systems for agrometeorological monitoring and forecasting purposes (crop stage and condition, adverse effects, prices...); on-the-job training of national counterparts and training of field observers; development of crop and weather data bases and models, as a part of a computerized and largely automated weather impact forecasting system.

1979-80: World Meteorological Organization (WMO) Agrometeorologist, seconded to joint FAO-WMO unit on agricultural biometeorology in FAO headquarters, Rome.

Main activity: Development of crop monitoring software (mainly for Sahelian crops).

1978-79: WMO Data processing expert for METAG project in, Oran, Algeria

Main activities: Software development for real-time analysis of Global Telecommunications System (GTS) data (including decoding) for weather impact assessment over west African and the Maghreb

1977-78: Research assistant at the Fondation Universitaire Luxembourgeoise, Arlon, Belgium

Main activities: Modeling of primary production of aquatic plants in relation to weather and water chemistry

1976-77: Research assistant at the University of Liège, Belgium

Assessing the environmental impact of land consolidation.

V. ADDITIONAL INFORMATION

From 1994: Maître de Conférences at the University of Liège, teaching a post-graduate course with B. Tychon on "Early warning systems and climate impacts on agriculture" to students in disaster management.

From 2014, May 1st: "Current President" of the International Society of Agricultural Meteorology, INSAM.

VI. LIST OF PUBLICATIONS AND TECHNICAL REPORTS

108. Wu Bingfang, Zhang Miao, Zeng Hongwei, Liu Guoshui, Chang Sheng, R Gomme 2014 New indicators for global crop monitoring in CropWatch - case study in North China Plain. IOP Publishing IOP Conf. Series: Earth and Environmental Science 17, 20 pp. http://iopscience.iop.org/1755-1315/17/1/012050/pdf/1755-1315_17_1_012050.pdf
107. Meroni M, Rembold F, Verstraete M, Gomme R, Schucknecht A, Beye G. 2014. Investigating the relationship between the inter-annual variability of satellite-derived vegetation phenology and a proxy of biomass production in the Sahel. *Remote Sens.* 6:5868-5884.
106. Gomme R, Kayitakire F (Editors) 2013 The challenges of index-based insurance for food security in developing countries. Luxembourg, Publications Office of the European Union, JRC77278. 276 pp. ISBN 978-92-79-27783-2. doi:10.2788/713. Downloadable from the EC publications repository as <http://bookshop.europa.eu/en/the-challenges-of-index-based-insurance-for-food-security-in-developing-countries-pbLB3112369/>.
105. Gomme R, Göbel W 2013. Beyond simple, one-station rainfall indices. In: Gomme & Kayitakire 2013 The challenges of index-based insurance for food security in developing countries. Luxembourg, Publications Office of the European Union, JRC77278. Pp 205-221. Same source as 104 above.
104. Gomme R, Kayitakire F 2013 Overview: from early warning to index insurance, In: Gomme & Kayitakire 2013 The challenges of index-based insurance for food security in developing countries. Luxembourg, Publications Office of the European Union, JRC77278. Pp 9-14. Same source as 104 above.
103. De Araujo Marinho Filho E, Korpi Salmela K, Vancutsem C, Kayitakire F, Gomme R, Kerdiles H, Rembold F, Urbano F, Meroni M. 2011. Special report on food security in the Horn of Africa - September 2011. Luxembourg (Luxembourg): Joint Research Centre of the European Commission; 2011. JRC68527.
102. Shukri, A., R. Gomme, C. McIntosh and A. Sarris. 2011. Interlinking insurance with credit to enhance agricultural productivity: a pilot application to Ethiopia. FERDI policy brief, Clermont Ferrand, 4 pp. <http://www.ferdi.fr/uploads/sfCmsContent/html/111/B23.pdf>
101. Gomme, R., F. Rembold, O.Leo. 2011. Summary Report of 3rd CRAM Workshop Crop and Rangeland Monitoring, 26-30 September 2011, Nairobi, Kenya. 14pp. http://mars.jrc.ec.europa.eu/mars/News-Events/3rd-CRAM-Workshop/summary_cram3
100. Faures, J.M., M. Bernardi & R. Gomme, 2010. There is no such thing as an average: how farmers manage uncertainty related to climate and other factors. *Water Res. Dev.*, 26(4):523–542. <http://www.tandfonline.com/doi/pdf/10.1080/07900627.2010.519515>
99. Ramasamy, S., R. Gomme & M. Bernardi, 2010. Climate science in support of sustainable agriculture and food security. *Clim Res* 47:95-110. Also available on-line from Online: http://www.int-res.com/articles/cr_oa/c047p095.pdf.
98. Gomme, R. & J. Grieser, 2010. Protecting small farmers. *D+C*, 6:237-239. Available on-line as English & German versions (<http://www.inwent.org/ez/articles/174300/index.en.shtml> and <http://www.inwent.org/ez/articles/174300/index.de.shtml>).
97. Gomme, R., H. Das, L. Mariani, A. Challinor, B. Tychon, R. Balaghi and M.A.A. Dawod, 2010. Agrometeorological Forecasting. Chapter 6 of WMO Guide to Agrometeorological Practices (GAMP), WMO N. 134, Geneva. 49 pp. http://www.wamis.org/agm/gamp/GAMP_Chap06.pdf
96. Stigter, K., W.Baier, I.Barrie, O.Brunini, H.Dommermuth, Z.Gat, R.Gomme, T.Keane, Chan Ah Kee, J.Lomas, J.Milford, A.Ravelo, D.Rijks, R.P.Samui, S.Walker, Wang Shili & A.Weiss. Introduction, WMO Guide to Agrometeorological Practices (GAMP), Chapter 1, 42 pp. http://www.agrometeorology.org/files-folder/repository/gamp_chapt1.pdf
95. Gomme, R., M. Acunzo, S. Baas, M. Bernardi, S. Jost, E. Mukhala & S. Ramasamy. 2010. Communication approaches in applied agrometeorology. Pp 263-286 in Stigter, K. (Ed.). *Applied Agrometeorology*, Springer, 1100 pp.
94. Glantz, M., R. Gomme & S. Ramasamy, 2009. Coping with a changing climate: considerations for adaptation and mitigation in agriculture. FAO Environment and Natural Resources Management Series N. 15, Rome, 99 pp. ftp://ext-ftp.fao.org/SD/Reserved/Agromet/glantz-gomme-ramasamy/B5_HLCPaper_09_lowres.pdf
93. Balaghi, R., M-C Badjeck, D. Bakari, E. De Pauw, A. De Wit, P. Defourny, S. Donato, R. Gomme, M. Jlibene1, A. C. Ravelo, N. Telahigue, B. Tychon, 2010. Managing climatic risks for enhanced food security: key information capabilities. White paper prepared for 3rd World Climate Conference, 31 August- 4 September 2009, Geneva. *Procedia Environmental Sciences* 1:313–323. http://www.wcc3.org/wcc3docs/pdf/WS10_WP_capability.doc
92. Aggarwal, P.K., W.E. Baethgen, P. Cooper, R. Gomme, B. Lee, H. Meinke, L.S. Rathore, M.V.K. Sivakumar, 2010. Managing climatic risks to combat land degradation and enhance food security: key information needs. White paper prepared for 3rd World Climate Conference, 31 August- 4 September 2009, Geneva. *Procedia Environmental Sciences* 1:305–312. http://www.wcc3.org/wcc3docs/pdf/WS10_WP_needs.doc
91. Gomme, R., T. El Hairech, D. Rosillon, R. Balaghi and H. Kanamaru, 2009. Impact of Climate

- Change on agricultural yields in Morocco. World Bank-Morocco study on the impact of climate change on the agricultural sector. 105 pp. Downloadable from ftp://ext-ftp.fao.org/SD/Reserved/Agromet/WB_FAO_morocco_CC_yield_impact/report/
90. Borgia, A., R. Gommès, M. Bernardi., H. Kanamaru. 2008. Rapid Agricultural Disaster Assessment Routine (RADAR). FAO Environment and Natural Resources Management series N.12. FAO, Rome, 77 pp. Ftp://ext-ftp.fao.org/SD/Reserved/Agromet/RADAR/Radar_web_lowRes_72_dpi.pdf
 89. Gommès, R. 2007. Non-parametric crop yield forecasting, a didactic case study for Zimbabwe. ISPRS Archives XXXVI-8/W48 Workshop proceedings: Remote sensing support to crop yield forecast and area estimates, 30 Nov. - 1 Dec. 2006, Stresa, Italy, p. 79-84. http://agrifish.jrc.it/marsstat/meetings/STRESA_papers/Gommès_ISPRs_2006.pdf
 88. Bernardi, M., R. Gommès and J. Grieser, 2006. Downscaling climate information for local disease mapping. *Parassitologia* 48:69-72.
 87. Bernardi, M., and R. Gommès, 2006. FAO activities in developing agro-meteorological tools and methods. pp. 21-28 in I. Savin and T. Nègre, Eds., *Agrometeorological Monitoring in Russia and Central Asian Countries*, EUR 22210 EN, Office of the official publications of the European communities, Scientific and Technical Research Series. 212 pp.
 86. Bernardi, M. and R. Gommès, 2006. Coordinating Role of the Food and Agriculture Organization in Developing Tools and Methods to Support Food-Security Activities in National Agrometeorological Services. pp 114-124 in: R.P. Motha, M.V.K. Sivakumar, and Michele Bernardi (Eds.) 2006. *Strengthening Operational Agrometeorological Services at the National Level*. Proceedings of the Inter-Regional Workshop, March 22-26, 2004, Manila, Philippines. Washington, D.C., USA: United States Department of Agriculture; Geneva, Switzerland: World Meteorological Organization; Rome, Italy: Food and Agriculture Organization of the United Nations. Technical Bulletin WAOB-2006-1 and AGM-9, WMO/TD No.1277. 238 pp.
 85. Chavula, A. and R. Gommès, 2006. Development of a weather yield index (wyx) for maize crop insurance in Malawi. FAO, Rome. 19 pp. Downloadable from: ftp://ext-ftp.fao.org/SD/Reserved/Agromet/Malawi_WYX/MYZ_report.pdf.
 84. Gommès, R., J. du Guerny, F. Nachtergaele and R. Brinkman, 2005. Sea level rise, population and agriculture. Pp 191-203 in *Climate Change and Africa*, Pak Sun Low, Editor. Cambridge University Press, Cambridge, UK, 369 pp.
 83. Gommès, R., 2004. Bread – innovation, serendipity, necessity – via hotspots of environmental degradation, gruel and sustainability. *European Society of Agronomy Newsletter*, 25: 43-44.
 82. Bernardi, M. & R. Gommès, 2004. Sviluppo di una rete regionale sul cambiamento climatico e l'agricoltura per i paesi del bacino del Mediterraneo. Pp 145-150, in: Esposito S. & C. Epifani (Eds) *CLIMAGRI - Cambiamenti Climatici e agricoltura - Risultati attività II° anno*, UCEA, Roma, 152 pp. ISBN 88-901472-1-0. Downloadable from http://www.climagri.it/pubblicazioni/n.23/Articolo_4_3.pdf.
 81. Gommès, R., J. Grieser and M. Bernardi. 2004. FAO agroclimatic databases and mapping tools. *European Society of Agronomy Newsletter*, 26: 32-36.
 80. Gommès, R., J. du Guerny, M.H. Glantz and Lee-Nah Hsu, 2004. Climate and HIV/AIDS: a hotspots analysis for early warning rapid response systems. UNDP/FAO/NCAR, UNDP SE Asia and Development Programme, Bangkok, 20 pp. <http://www.fao.org/forestry/15532-0-0.pdf>.
 79. Gommès, R., J. du Guerny and Michele Bernardi. 2004. August 2003 heatwave in France. Pp. 42-44 in : Glantz, M.H., 2004. *Useable Science 8: Early Warning Systems Do's and Don'ts*. Report of Workshop held in Shanghai, China. Boulder, Colorado: National Center for Atmospheric Research. 91 pp. <http://ccb.colorado.edu/warning/report.html#heat>
 78. Gommès, R., 2003. The FAO crop monitoring and forecasting approach. In Rijkx et al. (2003), 45-48. See N.73 below.
 77. Gommès, R. 2003. Agrometeorological policy between necessity and fashion. *European Society of Agronomy Newsletter*, 25: 16-18.
 76. Rijkx, D., F. Rembold, T. Nègre, R. Gommès and M. Cherlet, Editors. 2003. *Crops and Rangeland Monitoring in Eastern Africa for early warning and food security*. Proc. Of JRC/FAO Internat. Workshop, Nairobi 28-30 Jan. 2003. FAO/JRC, EUR 20869EN, European Commission, 184 pp + 1 CD-ROM.
 75. Gommès, R. 2003. Specification for a database of extreme agrometeorological events, pp. 123-134 in H.P. Das, T.I. Adamenko, K.A. Anaman, R.A. Gommès and G. Johnson, 2003, *Agrometeorology related to extreme events*. WMO Technical Note No.201 (WMO-No.943), WMO, Geneva, 137 pp.
 74. Gommès, R., 2003. Locusts, pp. 119-122 in H.P. Das, T.I. Adamenko, K.A. Anaman, R.A. Gommès and G. Johnson, 2003, *Agrometeorology related to extreme events*. WMO Technical Note No.201 (WMO-No.943), WMO, Geneva, 137 pp.
 73. Gommès, R. and A. Biewald, 2003. CD-ROM on FAO and Climate change. Environment and Natural Resources Working Paper N. 12, FAO, Rome
 72. Cihlar, J., S. Denning, F. Ahern, O. Arino, A.S. Belward, F. Bretherton, W. Cramer, G. Dedieu, C. Field, R. Francey, R. Gommès, J. Gosz, K. Hibbard, T. Igarashi, P. Kabat, D. Olson, S. Plummer, Rasool Ichtiague, M. Raupach, R. Scholes, J. Townshend, R. Valentini & D. Wickland, 2002. Initiative to quantify terrestrial carbon sources and sinks. *Trans. Am. Geophys. Union*, 83(1):1,6-7.

71. R. Gommes, 2001. Agrometeorological Models and Remote Sensing for Crop monitoring and Forecasting. Pp. 75-92 in Report of the Asia-Pacific Conference on Early Warning, Preparedness, Prevention and Management of Disasters, 12-15 June 2001, Chiang-Mai. RAP Publication 2001/14, FAO, Bangkok. 411 pp.
70. R. Gommes, 2001. What can modern agricultural meteorology do for the subsistence farmers. Paper presented at The First International Workshop on Farm Radio Broadcasting, 19-22 February, 2001, FAO, Rome.
69. Tschirley, J., J. Cihlar, S. Denning and R. Gommes, 2000. Terrestrial Carbon Observation Initiative (TCO). IGOS Bulletin, 2:2¹.
68. Sivakumar, MVK, R. Gommes and W. Baier, 2000. Agrometeorology and sustainable agriculture². Agric. For. Meteorol., 103(1):11-26.
67. Gommes, R. 1999. Roving Seminar on crop-yield weather modelling; lecture notes and exercises. WMO. Geneva, 153 pp. <ftp://ext-ftp.fao.org/SD/Reserved/Agromet/Documents/agro003a.pdf>.
66. Malone, J.B., R. Gommes, J. Hansen, J.M. Yilma, J. Slingenberg, F. Snijders, F. Nachtergaele, E. Ataman, 1998. A geographic information system on potential distribution of *Fasciola hepatica* and *F. gigantica* in east Africa based on Food and Agriculture Organization databases. Veterinary Parasitology, 78:87-101.
65. Gommes, R., 1998. Climate-related risk in agriculture. Pp. B1-B13, In: Expert meeting on risk management methods, Toronto, 30 April-1 May 1998, IPCC, 130 pp.
64. Gommes, R., 1998. Agrometeorological crop yield forecasting methods. Proc. Internat. Conf. On agricultural statistics, Washington 18-20 March 1998. Edited by Theresa Holland and Marcel P.R. Van den Broecke. International statistical Institute, Voorburg, The Netherlands. Pp 133-141.
63. Gommes, R., 1998. FAO's experience in the provision of agrometeorological information to the user community. In: Proc. Internat. Workshop on User requirements for Agrometeorological Services, Pune, India, 10-14 Nov. 1997. Edited by M.V.K. Sivakumar, U.S. De, K.C. Sinha ray and M. Rajeevan. India Meteorol. Dept., Shivajinagar, Pune, India. Pp 53-77.
62. Gommes R, Fresco L O. 1998. Everybody complains about climate... what can agricultural science and CGIAR do about it? Paper presented at the Mid-Term Meeting of the Consultative Group for International Agricultural Research (CGIAR), FAO, Rome. <http://www.fao.org/nr/climpag/pub/Gommes%20Fresco%201998.pdf>
61. Gommes, R., and P. Hoefsloot, 1998. Gaps in maps, estimation of missing data in agricultural statistics maps. Pp 155-168 in : Proc. of the the EU/COST-79 Seminar on Data Spatial Distribution in Meteorology and Climatology, Volterra, 28 Sep.-3 Oct. 1997), EU, Luxembourg, EUR18472, 226 pp.
60. Gommes, R., 1998. Provisional list of variables used for crop modelling purposes by the Space Applications Institute/MARS, pp. 323-326, in: D. Rijks, J.M. terres and P. Vossen (Eds), 1998. Agrometeorological applications for regional crop monitoring and production assessment, Official Publications of the EU, EUR 17735, Luxembourg. 516 pp.
59. Gommes, R., F.L. Snijders and J.Q. Rijks, 1998. The FAO crop forecasting philosophy in national food security warning systems pp. 123-130, in: D. Rijks, J.M. terres and P. Vossen (Eds), 1998. Agrometeorological applications for regional crop monitoring and production assessment, Official Publications of the EU, EUR 17735, Luxembourg. 516 pp.
58. Hough, M.N., R. Gommes, T. Keane and D. Rijks, 1998. Input weather data, pp. 31-55, in: D. Rijks, J.M. terres and P. Vossen (Eds), 1998. Agrometeorological applications for regional crop monitoring and production assessment, Official Publications of the EU, EUR 17735, Luxembourg. 516 pp.
57. Gommes, R. 1998. Some Aspects of Climate variability and food security in sub-Saharan Africa. Proc. Internat. Conf. On Tropical Climatology, Meteorology and Hydrology, Brussels 22-24 May 1996. Edited by G. Demarée, J. Alexandre and M. De Dapper. Royal Meteorol. Inst. of Belgium and Royal Acad. of Overseas Science. Pp. 655-673.
56. Gommes, R., 1997. An overview of extreme agrometeorological events. pages 1-9 in: G.J. Bedson, D. Dambe, T. Darnhofer, R. Gommes, G.N. Mwangela, D.E. Pedgley and V. Perarnaud, 1997. Extreme agrometeorological events. CAgM Report N. 73, WMO/TD-N. 836, geneva, Switzerland, 182 pp (updated from N. 36 below).
55. Gommes, R. 1997. Prévission agrométéorologique des rendements: quelques moyens et méthodes utilisés par la FAO dans un contexte de sécurité alimentaire, pp. 145-175 in: Tychon and Tonnard, (Eds), 1997, Estimation de la production agricole à une échelle régionale. Official Publications of the EU, EUR 17663, Luxembourg. 202 pp. (Agrometeorological yield forecasting: some means amn methods used by FAO in a food security context)
54. Gommes, R., 1997. Crop yield forecasting for food security and warning. In: Crop Yield Forecasting methods, Proceedings of the seminar, Villefranche-sur-mer, 24-27 Oct. 1994:35-39. Luxembourg,

¹ Reprinted by CEOS Newsletter, February 2000, 14:4-5.

² This paper was originally presented at a meeting on Agricultural Meteorology in the 21st Century (Feb 1999, Accra Ghana) and "pre-published" in the WMO Bulletin under the same title (W. Baier, R. Gommes and M.V.K. Sivakumar, 1999, 48(4):374-379). There is also an Italian version (Agricoltura e meteorologia) by W. Baier, R. Gommes and M.V.K. Sivakumar in Verde Ambiente, 2000, (1):24-28.

- Office for official publications of the European Communities, 438 pp.
53. Motha, R., H.H. Hayhoe, A.D. Kleschenko, I.A. Igue, C.E. Gay and R. Gommès. 1996. Agrometeorological data management. CAgM report No. 65, WMO/TD No. 748, WMO, Geneva. 84 pp.
 52. Gommès, R. 1996. Agrometeorologia e sicurezza alimentare: l'esperienza della FAO. PP. 12-15 in L'agrometeorologia italiana tra passato e futuro, Atti dell'incontro per il 120 anniversario dell'UCEA, UCEA, Ministero Risorse Agricole, Alimentari e Forestali, Roma. 53 pp. (Agrometeorology and food security: the experience of FAO)
 51. Gommès, R., 1996. Objectifs et cadres institutionnel et opérationnel des systèmes d'alerte précoce et de suivi de l'environnement. Proc. Internat. Conf Alerte Précoce et Suivi de l'environnement, Niamey, Niger, 7-9 Nov. 1994. In press. (Objectives, institutional and operational setting of environmental monitoring and early warning systems)
 50. Gommès, R., 1996. Suivi des Cultures et Prédiction des Récoltes, Applications Agrométéorologiques et Standardisation des Logiciels.. Proc. Internat. Conf Alerte Précoce et Suivi de l'environnement, Niamey, Niger, 7-9 Nov. 1994. In press. (Crop monitoring and yield forecasting, agrometeorological applications and the standardization of software)
 49. Gommès, R., 1996. Crops, weather and satellites: interfacing in the jungle. Proc. of COST 77 workshop on The Use of Remote Sensing Techniques in Agricultural Meteorology Practice. Budapest, 19-20 Sept. 1995. Pp. 89-96 of EUR 16924 EN, EU Directorate-General Science, research and Development, Luxembourg: Office for Official Publications of the European Communities, 289 pages.
 48. Sombroek, W.S. and R. Gommès, 1996. The climate change-agriculture conundrum, pp. 1-14 in Bazzaz, F., and W. Sombroek 1996 (Eds.), Global Climate Change and Agricultural Production, FAO and John Wiley, 345 pp.
 47. Gommès, R., 1995. A note on FAO Early Warning Software, pages 111-126, in: Standardization and Harmonization of databases and software for agro-climatic applications. Proc. of an expert meeting held in FAO, Rome, 28 Nov. - 3 Dec. 1993. FAO Agrometeorology series working paper N. 13, 313 pages.
 46. Gommès, R., 1995. Collaboration between FAO and WMO. WMO Bulletin, 44 (3) : 224-229.
 45. Gommès, R., and F. Petrassi, 1994. Rainfall variability and drought in sub-Saharan Africa since 1960. FAO Agrometeorology Series Working Papers N. 9, 100 pages.
 44. Villalpando, J.F., Biswas, B.C., Caceres-Mariscal, R., Coulibaly, A., Gat, Z., Gommès, R., Jacquart, C., Lomoton, B.S., Perry, K.B., Ulanova, E.S. and Ussher, A. 1994. Practical use of agrometeorological data and information for planning and operational activities in agriculture. WMO/TD-No. 629, 113 pp. <<http://www.wamis.org/agm/pubs/CAGMRep/CAGM60.pdf>>
 43. Gommès, R., and J.M. Faurès, 1994. The value of Weather for agriculture, forestry and fisheries. Geneva: WMO, Conference on Economic Benefits of Meteorological and hydrological Services, Geneva, 19-23 September 1994. WMO/TD N. 630, p. 107.
 42. Gommès, R. 1993. The integration of remote sensing and agrometeorology in FAO. Adv. Remote Sensing, 2(2):133-140.
 41. Gommès, R., and L. See, 1993. FAOMET, Agrometeorological Crop Forecasting Tools (manual of computer program) . FAO Agrometeorology Series Working Papers N. 8 : 59 pages + 1 diskette.
 40. See, L., and R. Gommès, 1993. Gridded data sets of mean monthly minimum, maximum and daytime temperatures in Africa. FAO Agrometeorology Series Working Papers N. 3 : 17 pages + 3 diskettes.
 39. Gommès, R., 1992. Applications agrométéorologiques pour le petit exploitant agricole. Proc. of a workshop on La radio rurale et la diffusion des informations agrométéorologiques, Bamako, Mali, 18-22 May 1992. WMO and CTA, Geneva, 29-37. (Agrometeorological applications for small-scale farmers)
 38. Gommès, R., 1992. Current climate and populations constraints on agriculture, chapter 4 (pages 67-86) in: Kaiser, H.M., and T.E. Drennen, Agricultural Dimensions of Global Climatic Change. St. Lucie Press, Delray Beach, Florida, 311 pages.
 37. Gommès, R., 1991. The FAO approach to crop monitoring and forecasting. Proc. Conf. on the Applications of remote sensing to agricultural statistics, Belgirate, Italy, 26-27 Nov. 1991, EEC. 14262 EN, EEC/JRC, Ispra, Italy, pages 187-197.
 36. Gommès, R., and Th. Nègre, 1990. The role of agrometeorology in the field of natural disasters . Proc. of IV Congreso Interamericano y II Colombiano de Meteorología, Bogota, Colombia, 17-21 September 1990: SoColMet, Bogota. An expanded version was published as "The role of agrometeorology in the alleviation of natural disasters" in FAO Agrometeorology Series Working Papers N. 2 : 22 pages. An updated /revised version was prepared in 1997 as Gommès 1997 (number 56 above).
 35. Gommès, R., 1986. The crop monitoring and early warning system in Tanzania, pages 76-89 in: Frère, M. and G. Popov, Early agrometeorological crop yield assessment, FAO Plant Production and Protection paper N. 73, FAO, Rome, 140 pages.
 34. Gommès, R., 1985. Rainfed food-crop production in East-Mwanza region. A semi-quantitative risk analysis. Workshop on food security and Nutrition education, Mikumi, Tanzania, 27-31 May 1985: IRA/UDSM/IUNS/DIDA/UNICEF/UTAFITI. 28 pages

33. Gomme, R., 1985. The potential of inexpensive portable computers in agrometeorology. WMO Bulletin, 34(1):17-22.
32. Gomme, R., 1983. Pocket computers in agrometeorology. FAO Plant production and protection paper N. 45, FAO, Rome, 140 pages.
31. Gomme, R., 1983. Angelsächsische Grabstein-platte in Meyerode ? Zwischen Venn und Schneifel, 19(5), 74-76. (Anglo-saxon tombstone in Meyerode ?)
30. Gomme, R., and M. Houssiau, 1982. Rainfall variability, types of growing seasons and cereal yields in Tanzania. Proc. Technical Conference on climate in Africa, Arusha, Tanzania, 25-30 Jan. 1982: WMO No. 596, pages 312-324.
29. Gomme, R., 1981. Some agrometeorological methods of the FAO/KILIMO Crop Monitoring and Early Warning Project. National Agromet. Comm. Newsletter, Dar Es Salaam, 6:1-23.
28. Gomme, R., and M. Houssiau, 1981. The processing of rainfall and other meteorological data at the FAO/KILIMO Crop Monitoring and early Warning Project. National Agromet. Comm. Newsletter, Dar Es Salaam, 5:1-12.
27. Gomme, R., and H. Muntau, 1981. "Carry-over" des métaux lourds dans un écosystème aquatique . Memorie dell'Istituto Italiano di Idrobiologia, 38: 379-408. (Carry-over of heavy metals in an aquatic ecosystem)
26. Gomme, R., and H. Muntau, 1981. Détermination in situ des vitesses d'absorption des métaux lourds par les macrophytes du lac Majeur. Memorie dell'Istituto Italiano di Idrobiologia, 38: 347-378. (In situ determination of rates of heavy metal absorption by Lake Maggiore macrophytes)
25. Gomme, R., and H. Muntau, 1981. Variations de la composition chimique (polyéléments et métaux lourds) entre organes de *Trapa natans* L. et de *Polygonum amphibium* L. Memorie dell'Istituto Italiano di Idrobiologia, 38: 331-346. (Variations of the chemical composition - polyelements and heavy metals - between the organs of *Trapa natans* L. and *Polygonum amphibium* L.)
24. Gomme, R., and H. Muntau, 1981. Variations saisonnières de la composition chimique des limnophytes du lac Majeur. Memorie dell'Istituto Italiano di Idrobiologia, 38: 309-330. (Seasonal variations of the chemical composition of Lake Maggiore limnophytes)
23. Gomme, R., and H. Muntau, 1981. La composition chimique des limnophytes du lac Majeur. Memorie dell'Istituto Italiano di Idrobiologia, 38: 237-308. (The chemical composition of limnophytes in Lake Maggiore)
22. Gomme, R., H. Muntau, R. Cenci, A. Lattanzio and G. Pigozzi, 1981. Caractérisation du chimisme des eaux superficielles des Bassins Sud et de Pallanza du lac Majeur. Memorie dell'Istituto Italiano di Idrobiologia , 38: 19-78. (Chemical characterization of surface waters in the Pallanza and southern basins of Lake Maggiore)
21. Gomme, R., 1980. Die Wetterlage in Laufe der Zeit, samt einer Beschreibung des Katastrophenjahres 1740 aus dem Pfarrarchiv Reuland. Part 1. Zwischen Venn und Schneifel, (15) : 162-166, part 2. Z.V.S (16) : 188-191. (Weather during historical times, with a description of the disaster-year 1740 from the archives of the parish of Reuland)
20. Gomme, R., 1980. La végétation anthropogène de la tourbière d'Inarzo (Prov. Varese, Italie). Notes de Recherche de la F.U.L. Arlon: Fondation Universitaire Luxembourgeoise, 18 pages. (The anthropogenic vegetation of the Inarzo peat bog)
19. Gomme, R., 1979. Data processing guide for METAG pilot project. Geneva: WMO. 53 pages. Also in French and Spanish.
18. Gomme, R., and A. Froment, 1978. L'évaluation des sites dans les remembrements ruraux. L'exemple du Gerny (Rochefort). Bulletin Société Royale Botanique de Belgique 111(2): 193-206. (Environmental impact assessment and land consolidation. Example from the Gerny Plateau - Rochefort, Belgium-).
17. Gomme, R., 1978. Le pH, le potentiel Redox et leur mesure Lecture notes. Arlon, Belgium: Fondation Universitaire Luxembourgeoise, 17 pages. (pH, redox potential and their measure)
16. Gomme, R., 1977. Remembrement Le Gerny. Avant-projet d'évaluation des sites. Groupe d'écologie appliquée, Louvain-la-Neuve, Belgium, 80 pages + 15 maps. (Le Gerny land consolidation, a pilot study of land evaluation)
15. Gomme, R., 1977. Etude écologique des métaux lourds dans les hydrophytes macrophytes du lac Majeur (Italie) Doctoral thesis, Univ. of Liège, Belgium, 241pp + 149 tables. (An ecological study of heavy metals in macrophytic hydrophytes of Lake Maggiore -Italy-)
14. Gomme, R., 1977. Der Mineralstoffgehalt des Sumpfbitterklee (Menyanthes trifoliata L.) im Sankt Vith Land. Zwischen Venn und Schneifel, 13, 134-137. (Mineral composition of Menyanthes trifoliata L. in the area of St.Vith)
13. Gomme, R., and H. Muntau, 1976. Elementgehalt und Korrelationen zwischen Oligo- und Polyelementen in Lagarosiphon Major (Ridley) Moss im Lago Maggiore, sowie ein Versuch der ökochemischen Deutung. Memorie dell'Istituto Italiano di Idrobiologia, 33:185-200. (Chemical composition and correlations between oligo- and polyelements in Lagarosiphon major (Ridley) Moss, with an ecochemical interpretation)
12. Gomme, R., 1976. Seltsame Pflanzen am Thommer Weiher. Zwischen Venn und Schneifel, St Vith, Belgium, 12(4): 51-57. (Unusual plants at the pond of Thommen)
11. Gomme, R., and H. Muntau, 1976. Cadmium levels in biota and abiota from Lake Maggiore Eur.5441e, EEC Directorate General on scientific and technical information and information

- management, Ispra, Italy, 31 pages
10. Muntau, H., and R. Gomme., 1976. Kritische Bewertung der analytischen Methoden zur Bestimmung von Blei in atmosphärischer Luft. Proc. 12ème colloque international sur les atmosphères polluées, Paris, 5-7 May 1976. 17 pages. (Critical evaluation of analytical methods used to determine lead concentrations in air)
 9. Gomme, R., and H. Muntau, 1975. Données pour la chorologie, la phénologie florale et une clé analytique pour les hydrophytes du lac Majeur. EEC-Euratom report 1679, Ispra, Italy, 51 pages. (Contribution to the chorology, phenology, and an analytical key for the identification of hydrophytes of Lake Maggiore)
 8. Gomme, R., and H. Muntau, 1975. Dosage spectrophotométrique des pigments et des protéines dans les macrophytes du lac Majeur. EEC-Euratom report 1677, Ispra, Italy, 21 pages. (Spectrophotometric determination of pigment and protein concentrations in macrophytes from Lake Maggiore)
 7. Gomme, R., and H. Muntau, 1975. Etude radiochimique de la cinétique d'absorption du plomb ionique et de son accumulation dans les limnophytes au moyen de ²⁰³Pb. EEC-Euratom report 1659, Ispra, Italy, 13 pages. (The radiochemical determination of ionic lead absorption kinetics and accumulation in limnophytes using ²⁰³Pb)
 6. Gomme, R., and H. Muntau, 1975. La distribution de quelques métaux lourds (Zn, Cu, Cr, Ni, Mn, Co) dans la zone littorale des bassins sud et de Pallanza du lac Majeur. Memorie dell'Istituto Italiano di Idrobiologia, 32, 245-259. (The distribution of some heavy metals -Zn, Cu, Cr, Ni, Mn, Co- in the littoral zone of the southern and Pallanza basins of Lake Maggiore)
 5. Gomme, R., and H. Muntau., 1975. La flore et la végétation aquatiques des bassins sud du lac Majeur. I. Observations préliminaires. Memorie dell'Istituto Italiano di Idrobiologia, 32:221-243. (Flora and vegetation of the southern basins of Lake Maggiore. I. Preliminary observations)
 4. Gomme, R., and H. Muntau, 1975. Quelques aspects de la composition chimique de *Trapa natans* L., manganèse et fer en particulier, dans le lac Majeur (Italie). Bulletin de la Société Royale Botanique de Belgique, 108(2):209-218. (Some aspects of the chemical composition of *Trapa natans* L., in Lake Maggiore -Italy -, especially iron and manganese)
 3. Muntau, H., and R. Gomme, 1974. Kritischer Vergleich verschiedener Methoden zur Bestimmung von Kadmium in Luft. Proc. Internat. Symposium on Problems of the contamination of man and his environment by mercury and cadmium, Luxembourg, 3-5 July 1973. EUR 5075, EEC Directorate General on scientific and technical information and information management, Luxembourg, pages 191-201. (Critical comparison of different methods to determine cadmium concentrations in air)
 2. Ravera, O., R. Gomme and H. Muntau, 1974. Cadmium distribution in aquatic environments and its effects on aquatic organisms. Proc. Internat. Symposium on Problems of the contamination of man and his environment by mercury and cadmium, Luxembourg, 3-5 July 1973. EUR 5075, EEC Directorate General on scientific and technical information and information management, Luxembourg, pages 317-330.
 1. Gomme, R., 1972. Etude comparative des sédiments, de *Lagarosiphon major* (Ridley) Moss et de *Myriophyllum spicatum* L. utilisés comme indicateurs de pollution du lac Majeur par les métaux lourds. Mémoire de Licence en sciences botaniques. Liège, Belgium. (A comparative study of sediments, *Lagarosiphon major* (Ridley) Moss and *Myriophyllum spicatum* L. as heavy metal pollution indicators of Lake Maggiore, Degree in botany thesis, Univ. of Liège, Belgium). Published as EEC-Euratom report 1660, Ispra, Italy, 114 pages.