

Lara Aleluia da Silva Reis

ENVIRONMENTAL ENGINEERING RESEARCHER

Integrated Assessment Modeler

Born in Lisbon, Portugal on the 06-10-1984; Married with 2 children

Citizenship: Portuguese

Main interests : Climate change policy, environmental economics, air pollution, impact assessment, energy policy, integrated assessment and environmental statistics

EXPERIENCE

RFF-CMCC

European Institute on Economics and the Environment (EIEE),

MILAN, ITALY

September 2018 – present

SCIENTIST

Development and maintenance of the air pollution module of the WITCH model; Cost-Benefit Analysis, air pollution impacts and Implementation of short (NDCs) and long term climate policies.

FEEM and CMCC

**Foundation,
MILAN, ITALY**

April 2013 – present

JUNIOR RESEARCHER

Development and maintenance of the air pollution module of the WITCH model; Assessment of the future costs of green technologies; Implementation of short and long term climate policies.

**PUBLIC RESEARCH
CENTRE HENRI
TUDOR,
LUXEMBOURG**

September 2008 – March 2013

R&D ENGINEER

Air quality and integrated assessment modeling.

EDUCATION

**UNIVERSITY OF
LUXEMBOURG**

October 2008 - October 2012

PH.D. IN ENGINEERING SCIENCES

Thesis title: “Development and application of an Asymptotic Level Transport Pollution Model for Luxembourg Energy and Air Quality Project”

Faculty of Science, Technology and Communication, of the University of Luxembourg

**ARISTOTLE
UNIVERSITY OF
THESSALONIKI,
GREECE**

September 2010 - February 2011

GUEST PH.D. STUDENT

Development of a fast photochemical module and an emission downscaling model
Laboratory of atmospheric physics of Aristotle university of Thessaloniki, Greece

**FFG and ESA,
AUSTRIA**

2010

ALPBACH SUMMER SCHOOL

New space missions for understanding climate change
Team project awarded by the school Jury Chairman's prize.

Aeronautics and Space Agency of the Austrian Research Promotion Agency (FFG), co-sponsored by ESA.

**NEW UNIVERSITY
OF LISBON,
PORTUGAL**

September 2006 - June
2008

**MSC IN ENVIRONMENTAL ENGINEERING
management and environmental systems**

Master thesis on "Statistical models for ozone prediction in Lisbon and Tagus valley region."

Faculty of Science and Technology of The New University of Lisbon, Portugal.

**TECHNICAL
UNIVERSITY OF
DRESDEN,
GERMANY**

February 2006 - August
2006

ERASMUS

Practical work on analysis of the behavior of chlorine in combustion processes.
Extra ECTS for the accomplishment of Climate change course.

**NEW UNIVERSITY
OF LISBON,
PORTUGAL**

September 2002 - June
2006

DEGREE IN ENVIRONMENTAL ENGINEERING

Hydraulics II, as extra-curricular course.

Faculty of Science and Technology of The New University of Lisbon, Portugal.

PUBLICATIONS

UPCOMING

- Aleluia Reis L., Drouet L., Tavoni M. (2019), **Cost-Benefit Analysis of Air Pollution and Climate Change impacts - Optimal policies to save lives**, upcoming
- Aleluia Reis L., Vrontisi Z., Verdolini E. (2019), **Optimal R&D investment for a 1.5C world**, upcoming

SUBMITTED

- Harmsen M., Fricko O., Hilaire J., van Vuuren D., Drouet L., Durand-Lasserve O., Fujimori S., Keramidas J., Klimont Z., Luderer G., Aleluia Reis L., Riahi K., Sano F., J. Smith S., (2017), **Taking some heat off the INDCs? The limited potential of short-lived climate forcers' mitigation**, *Climatic Change*, submitted: 10/01/2017, submitted to the EMF30 special issue
- Roelfsema M., et al., (2017), **Taking stock of climate policies: evaluation of national policies in the context of the Paris Agreement climate goals**, submitted: 11/01/2017, under revision

PEER-REVIEWED PUBLICATIONS

- Krey V., Guo F., Kolp P., Zhou W., Schaeffer R., Aleluia Reis L., Awasthy A., Bertram C., Drouet L., Fragkos P., Fujimori S., Garg A., Gernaat D., He G., Iyer G., Jiang K., Keramidas J., Kitousk A., Koberle A., Kriegler E., Luderer G., Mathur R., Oshiro K., Sano F., Shoaib-Tehrani B., Vishwanathan S., van Vuuren D., (2017), **Looking under the hood: A comparison of techno-economic assumptions across national and global integrated assessment models Full length article**, *Energy*, accepted: 12/17/2018
- Aleluia Reis L., Drouet L., Van Dingenen R., Emmerling J., (2017), **Future Global Air Quality indices under different socioeconomic and climate assumptions**, *Sustainability*, 2018, 10, 3645
- Vrontisi Z., Luderer G., Saveyina B., Keramidas K., Aleluia Reis L., Baumstark L., Bertram C., Sytze de Boer H., Drouet L., Fragkiadakis K., Fricko O., Fujimori S., Guivarch C., Kitous A., Krey V., Kriegler E., Ó Broini E., Paroussos L., van Vuuren D., (2017), **Enhancing global climate policy ambition towards a 1.5 °C stabilization: a short-term multi-model assessment**, *Environmental Research Letters* 13 (2018), no. 4, 044039.
- Verdolini E., Diaz Anadon L., Baker E., Bosetti V. and Aleluia Reis L., **Future prospects for energy technologies: Insights from expert elicitations**, *Review of Environmental Economics and Policy* 12 (2018), no. 1, 133--153.

- Rao S., Klimont Z., Smith S.J., Van Dingenen R., Dentener F., Bouwman L., Riahi K., Amann M., Leon Bodirsky B., van Vuuren P., **Aleluia Reis L.**, Calvin K., Drouet L., Fricko O., Fujimori S., Gernaat D., Havlik P., Harmsen M., Hasegawa T., Heyes C., Hilaire J., Luderer G., Masui T., Stehfest E., Strefler J., van der Sluis S. and Tavoni M., **Future air pollution in the shared socio-economic pathways**, *Global Environmental Change* 42 (2017), 346 –358.
- Riahi K., van Vuuren D., Kriegler E., Edmonds J., C. Oneill B., Fujimori S., Bauer N., Calvin K., Dellink R., Fricko O., Lutz W., Popp A., Crespo Cuaresma J., KC S., Leimbach M., Jiang L., Kram T., Rao S., Emmerling J., Ebi K., Hasegawa T., Havlik P., Humpender F., **Aleluia Da Silva L.**, Steve Smith, Elke Stehfest, Valentina Bosetti, Jiyong Eom, David Gernaat, Toshihiko Masui, Joeri Rogelj, Jessica Streer, Laurent Drouet, Volker Krey, Gunnar Luderer, Mathijs Harmsen, Kiyoshi Takahashi, Lavinia Baumstark, Jonathan C. Doelman, Mikiko Kainuma, Zbigniew Klimont, Giacomo Marangoni, Hermann Lotze-Campen, Michael Obersteiner, Andrzej Tabeau, and Massimo Tavoni, **The shared socioeconomic pathways and their energy, land use, and greenhouse gas emissions implications: An overview**, *Global Environmental Change* 42 (2017), 153 -- 168.
- Heleen L. van Soest, **Lara Aleluia Reis**, Laurent Drouet, Detlef P. van Vuuren, Michel G. J. den Elzen, Massimo Tavoni, Keigo Akimoto, Katherine V. Calvin, Panagiotis Fragkos, Alban Kitous, Gunnar Luderer, and Keywan Riahi, **Low-emission pathways in 11 major economies: comparison of cost-optimal pathways and paris climate proposals**, *Climatic Change* 142 (2017), no. 3, 491--504.
- J. Aldy, W. Pizer, M. Tavoni, **L. Aleluia Reis**, K. Akimoto, G. Blanford, C. Carraro, L. E. Clarke, J. Edmonds, G. C. Iyer, H. C. McJeon, R. Richels, S. Rose, and F. Sano, **Economic tools to promote transparency and comparability in the paris agreement**, *Nature Climate Change* (2016), no. 6, 1000|1004.
- Laura Diaz Anadon, Erin Baker, Valentina Bosetti, and **Lara Aleluia Reis**, **Expert views - and disagreements - about the potential of energy technology r&d**, *Climatic Change* 136 (2016), no. 3, 677--691.
- Shilpa Rao, Zbigniew Klimont, Joana Leitao, Keywan Riahi, Rita van Dingenen, **Lara Aleluia Reis**, Katherine Calvin, Frank Dentener, Laurent Drouet, Shinichiro Fujimori, Mathijs Harm-sen, Gunnar Luderer, Chris Heyes, Jessica Streer, Massimo Tavoni, and Detlef P. van Vuuren, **A multi-model assessment of the co benefits of climate mitigation for global air quality**, *Environmental Research Letters* 11 (2016), no. 12, 124013.
- Erin Baker, Valentina Bosetti, Laura Diaz Anadon, Max Henrion, and **Lara Aleluia Reis**, **Future costs of key low-carbon energy technologies: Harmonization and aggregation of energy technology expert elicitation data**, *Energy Policy* 80 (2015), 219 – 232.
- Erin Baker, Olaitan Olaleye, and **Lara Aleluia Reis**, **Decision frameworks and the investment in r&d**, *Energy Policy* 80 (2015), 275 --285.
- **L. Aleluia Reis**, D. Melas, B. Peters, and D. S. Zachary, **Developing a fast photochemical calculator for an integrated assessment model**, *International Journal of Environment and Pollution (IJE)* 50 (2012), no. 1/2/3/4.
- D. S. Zachary, L. Drouet, U. Leopold, and **L. Aleluia Reis**, **Trade-offs between energy cost and health impact in a regional coupled energy air quality model: the leaq model**, *Environmental Research Letters* 6 (2011), no. 2, 024021.

PUBLISHED REPORTS

- Contributor to the drafting of the final report, chapters 2 and 3:
 - European Commission Directorate-General for Research and Innovation, **Final Report of the High-Level Panel of the European Decarbonisation**, Publications Office of the European Union, 2018
- **L. Aleluia Reis**, J. Emmerling, M. Tavoni, and D. Raitzer, **The economics of greenhouse gas mitigation in developing asia**, ADB ECONOMICS WORKING PAPER SERIES 504, ADB ECONOMICS WORKING PAPER SERIES, Development Bank ADB Avenue, Mandaluyong City, Metro Manila, Philippines, December 2016.
- V. Bosetti, L. D. Anadon, E. Baker, **L. Aleluia Reis**, and E. Verdolini, **The future of energy technologies: An overview of expert elicitations**, GGKP Working Paper 01|2016, GGKP Research Committee on Technology and Innovation, 2016.

CHAPTER IN BOOK

- **L. Aleluia**, V. Bosetti, M. Bunn, M. Catenacci, L.A. Diaz, G. Fiorese, A. Lee, and E. Verdolini, **Innovation under uncertainty the future of carbon-free energy technologies**, Edward Elgar Publishing, 2013.

RESEARCH PAPERS

- van Soest H., McCollum D., Bertram C., Harmsen M., van Vuuren D., Kriegler E., Roelfsema M., Fragkos P., den Elzen M., **Aleluia Reis L.**, Riahi K., Krey V., Kejun J., Schaeffer R., Mathur R., Fujimori S., **Opportunities for Enhanced Action**

to Keep Paris Goals within Reach – Contribution to the Talanoa Dialogue by the COMMIT and CD-LINKS projects , DOI:10.13140/RG.2.2.26589.26080, <https://unfccc.int/documents/184187>, 2018.

- Aldy J.E., Pizer W.P., Akimoto K., **Aleluia Reis L.**, Carraro C., and Tavoni M., **Learning from nationally determined contributions** , Research Papers Issue RP0286, CMCC, 2018.
- L D Anadon, E Baker, V Bosetti, and **L Aleluia Reis**, **Too early to pick winners: Disagreement across experts implies the need to diversify r&d investment**, Working Paper 22.2016, Fondazione Eni Enrico Mattei, 2016.
- Johannes Emmerling, Laurent Drouet, **Lara Aleluia Reis**, Michela Bevione, Loic Berger, Valentina Bosetti, Samuel Carrara, Enrica De Cian, Gauthier De Maere D'Aertrycke, Tom Longden, Maurizio Malpede, Giacomo Marangoni, Fabio Sferra, Massimo Tavoni, Jan Witajewski-Baltvilks, and Petr Havlik, **The WITCH 2016 Model - Documentation and Implementation of the Shared Socioeconomic Pathways**, Working Paper 2016.42, Fondazione Eni Enrico Mattei, 2016.
- H van Soest, **L Aleluia Reis**, D van Vuuren, C Bertram, L Drouet, J Jewell, E Kriegler, G Luderer, K Riahi, J Rogelj, M Tavoni, M den Elzen A Awasthy, K Calvin, P Capros, L Clarke, M Colombier, T Fei, A Garg, F Guedes, M Imperio, M Kainuma, J Kejun, A C Kberle, V Krey P Kolp, A Kitous, P Leonidas, A Lucena, T Masui, L Nogueira, R Pierfederici, B Saveyn, R Schae er, F Sha, B Shoai, P R Shukla, T Spencer, A Szklo, H Waisman, and et al, **Regional low - emission pathways from global models**, Working Paper 110.2015, Fondazione Eni Enrico Mattei, 2015.

CONFERENCE PROCEEDINGS

- **L Aleluia Reis**, L Drouet, and M Tavoni, **Future mortality due to air pollution under climate policies**, Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purpose (S Di Sabatino, S Trini Castelli, and E Brattich, eds.), 2017, pp. 185–189.
- **L Aleluia Reis**, D S Zachary, B Peters, and L Drouet, **A fast air quality model using look-up tables to address integrated environmental assessment model requirements**, International Environmental Modelling and Software Society (iEMSS) 2012 International Congress on Environmental Modelling and Software Managing Resources of a Limited Planet, Sixth Biennial Meeting, Leipzig, Germany (R Seppelt, A A Voinov, S Lange, and D Bankamp, eds.), iemss, 2012 (peer reviewed).
- L Drouet, **L Aleluia Reis**, U Leopold, and D S Zachary, **Implementing the oracle-based optimisation for an integrated assessment model for air pollution: the Luxembourg energy air quality model**, International Environmental Modelling and Software Society (iEMSS) 2012 International Congress on Environmental Modelling and Software Managing Resources of a Limited Planet, Sixth Biennial Meeting, Leipzig, Germany (R Seppelt, A A Voinov, S Lange, and D Bankamp, eds.), iemss, 2012 (peer reviewed).
- **L Aleluia Reis**, D Melas, B Peters, and D S Zachary, **Developing a fast photochemical calculator for an integrated assessment model**, 14th Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes (J G Bartzis, A Syrakos, and S Andronopoulos, eds.), Environmental Technology Laboratory, Department of Mechanical Engineering, University of West Macedonia, Greece, 2011, pp. 225–229.
- **L Aleluia Reis**, D S Zachary, U Leopold, and B Peters, **Selecting a fast air quality calculator for an optimization meta-model**, Air Pollution XVII (C A Brebbia and V POPOV, eds.), vol. 123, WIT Press, 2009, pp. 39 -- 49.
- D S Zachary, U Leopold, **L Aleluia Reis**, C Braun, G Kneip, and O ONagy, **An energy and environmental meta-model for strategic sustainable planning**, Energy and Sustainability II, vol. 121, WIT Press, 2009.

ON LINE TOOLS/WORKS

[HTTPS://RPUBS.COM/LALELUIA/DEEDSWP1DB](https://rpubs.com/laleluia/deedswp1db)

[HTTPS://DATASHOWB.SHINYAPPS.IO/AQIVIS/](https://datashowb.shinyapps.io/aqivis/)

[HTTPS://RPUBS.COM/LALELUIA/RFFELPATS](https://rpubs.com/laleluia/rffelpats)

SKILLS

MODELS

FASST and FASST(R), WITCH, AUSTAL2000, OZIPR, OpenFOAM

PROGRAMING

R, C, IDL, Matlab, Python, bash script, GAMS, LateX, tikz, R markdown, R Shiny

SOFTWARE

Statistics: R, SPSS, Systat; GIS: Idrisi, GRASS,

QuantumGIS; OS: windows, linux

LANGUAGES

Portuguese (Native), English (Proficient), French (Proficient), Italian (Fluent), Spanish (Intermediate), German (Basic user) and Greek (Basic user)

AIR QUALITY MONITORING

Station monitoring air quality: Snif Air Lab, in Almada, Portugal

REFEREEING

Often reviews for MDPI journals: C | Energies | Atmosphere | International Journal of Environmental Research and Public Health | Economies and Applied Sciences

Sporadically reviews articles for the journals: Environmental Modeling and Software | Nature communications | Renewable & Sustainable Energy Reviews | International Journal of Environmental Pollution

PROJECTS

Currently participating in several EU funded projects: DEEDS (H2020) | COMMIT (EuropeAid) | INNOPATHS (H2020) | CD-Links (H2020)

Participated in the past Projects: ICARUS (ERC) | LIMITS (FP7) | ADVANCE (FP7) | MILES (EuropeAid)

TEACHING

Lecturer and co-project leader of the 'Climate change: Design activism for sustainability' Envisioning workshop at the Domus Academy, November-December 2018

FUND RAISING

Participated in the writing and preparation of two EC funded projects, the DEEDS and the COMMIT projects.

INTERNATIONAL COLLABORATIONS

- Participation to the Energy Modeling Forum (Multi-model intercomparison projects coordinated by Stanford University), on the Working Group EMF 30 "Short Lived Climate Forcers / Air Quality"

- Participation to the development of the "Shared-Socioeconomic Pathways", building the air pollution scenarios for the WITCH model.

- Presented at the COP22-Marrakesh in the side event '**NDC Policy Choices and Levels of Effort**'