

**TRIP REPORT**

**By Amanda Cunningham**

**2018 October 9th**

At the request of the Portuguese government, specifically the Integrated Rural Fire Management Agency, I.P (AGIF), and with the financial support of THE LUSO-AMERICAN FOUNDATION FOR DEVELOPMENT (FLAD), Amanda Cunningham, spent 4 weeks in Portugal from 18 August – 14 September 2018.

**The objectives of the visit were:**

- a) Training and sharing of knowledge of Fire-Meteorology to several entities through a series of workshops and hands-on-training.
- b) Contribute to raise the skills of operational meteorological staff and improve the quality of services they provide the Wildfire Organization, at strategically and operation level.
- c) Conduct a series of seminars to educate and share the knowledge of the atmospheric influence on significant wildfires and how to anticipate and forecast

**The primary contacts with the Portuguese government were:**

**IPMA:**

- Miguel Miranda – President
- Nuno Moreira – head of division of weather forecast, surveillance and observation

**AGIF:**

- Tiago Oliveira – President
- Ana Diogo
- Marta Janeira

**ANPC:**

- Duarte Costa – National commander for civil Protection
- Fábio Silva – Especial Force of Firefighters

**The program included targeted workshops, site visits and one-on-one training. (see Appendix 1).**

1. Fire-Weather Workshop and Site Visits.
2. IPMA One-on-One Training
3. Advanced Fire-Behavior Workshop (2 sessions)

**In addition to the training provided, the program included a series of lectures to multiple entities throughout Portugal (see Appendix 2):**

1. Algarve University
2. Aveiro University
3. National School of Firefighters
4. Agronomy Institute
5. Reception for Foundation

**During my mission, I conducted several media interviews to talk about my views on fire-meteorology in Portugal and what was begin accomplished to improve communication and develop a common language. (see Appendix 3):**

**Following extensive conversations and training with operational meteorologists, some technical and operational improvements may be added, namely:**

1. Establish IPMA's role as the SOURCE of meteorological data for decision makers.
  - a. Suggestion: Provide meteorological data requests, as requested, in a timely manner and in the format requested.
  - b. Suggestion: Improve user experience with online products. Provide method of viewing multiple model data sets on IPMA website.

- c. Suggestion: Improve resolution and quality of model data.
- 2. Improve value and relevance of IPMA's meteorological products and services
  - a. Suggestion: Obtain feedback and adjust products based on how end users use the meteorological services and data
  - b. Suggestion: Strengthen partnerships with other agencies and organizations to develop effective methods of providing weather data
- 3. Build a bridge to provide Civil Protection with their needs for national planning
  - a. Suggestion: Communication needs to be in both directions. Conduct an evening coordination call between IPMA and Civil Protection
  - b. Suggestion: Provide an effective, focused and timely weather briefing.
  - c. Suggestion: Meteorologists should avoid briefing on fire weather and fire behavior indices
- 4. Operational Meteorologists need basic knowledge of fire weather in order effectively understand needs and communicate fire weather and concerns.
  - a. Suggestion: This can be accomplished through the COMET S290 online module as well as the EU Training Fire Weather Course.
  - b. Suggestion: Operational Meteorologists must have access to multiple data sources; including but not limited to all available weather model outputs as well as CeaseFire and other relevant programs.

## APPENDIX 1: WORKSHOPS

### 1. Fire-Weather Workshop

**Date:** August, 21<sup>st</sup>-24<sup>th</sup>, 2018

**Goal:** To contribute to raise the skills of operational meteorological staff and improve the quality of services they providing to Wildfire Organization, at strategically and operation level.

**Hours:** 24h

**Represented Entities:** AGIF, ANPC, GNR, ICNF, IPMA, FAP, MAR, FCUL

**Total of participants:** 23

- Collaborative workshop with a focus on understanding a common language within the weather and Fire community.
- Workshop Topics: Instability, Fire Behavior Basics, Critical Fire-Meteorology Patterns, Fire Indices, Adding fire to the forecast, Meteorograms, Decision Support, Fire-Meteorology Resources, CeaseFire.
- Case Studies: Students participated in discussion and analysis of many case studies from past local fires.

### 2. IPMA One-on-One Training

**Date:** August, 26<sup>st</sup>-30<sup>th</sup>, 2018

**Goal:** Provide feedback and one-on-one training on providing weather briefings. Develop a new briefing model based on feedback from needs at Civil Protection

**Hours:** 20h

- Viewed Civil Protection briefings
- Provided one-on-one evaluation and feedback to forecaster
- Worked with IPMA forecasters to develop a new briefing guide that would significantly reduce stress and workload

- Met with end users at Civil Protection to establish their meteorological needs for planning and translated

### 3. Advanced Fire-Behavior Workshop (2 Sessions)

**Date:** September 12<sup>th</sup> and September 13<sup>th</sup>

**Goal:** Enhance fire-weather forecasting skills of fire managers and fire analysts by providing advanced fire-weather forecasting training.

**Hours:** 7h (2 sessions)

**Represented Entities:** AGIF, ANPC, GNR, ICNF, IPMA, FAP, MAR, FCUL

**Total of participants:** 34

- Hands on experience adapting sounding for fire-environment to create fire behavior forecast
- In-depth lecture on atmospheric instability (cold front) impact in fire behavior and how to anticipate critical weather changes.
- Advanced Fire-Meteorology course with focus on conceptually understanding updrafts and downdrafts

## APPENDIX 2: LECTURES

### “Influence of Meteorology on Significant Wildfires”

- Date:** September, 04<sup>th</sup> 2018  
**Host:** Algarve University  
**Represented Entities:** AGIF, ANPC, GTF, UAlg, UÉvora, B.V., Safeties Communities Algarve  
**Total of participants:** 42  
<https://www.ualg.pt/pt/content/influencia-da-meteorologia-nos-incendios>
- Date:** September, 06<sup>th</sup> 2018  
**Host:** Aveiro University  
**Represented Entities:** AGIF, ANPC, GTF, UA, ADAi, Afocelca, ENB, IPB, B.V.  
**Total of participants:** 58  
<https://uaonline.ua.pt/pub/detail.asp?c=55515&lg=pt>
- Date:** September 10<sup>th</sup> 2018  
**Host:** National School of Firefighters  
**Total of participants:** 12  
<https://www.enb.pt/publicacao.php?id=294>
- Date:** September 14<sup>th</sup> 2018  
**Host:** Agronomy Institute  
**Represented Entities:** Dom Luiz Institute, Agronomy Institute, Firefighters CMDT, South Africa Team  
**Total of participants:** 25
- FLAD Reception:** September 14<sup>th</sup> 2018  
This presentation will explore the perspective and complexities of wildfire behavior from the unique lens of Fire-Meteorologist in the United States. In addition, I will highlight my experiences from the past few weeks while working with various entities in Portugal;

emphasizing the of benefits that fire-weather forecasters can bring to improve the communication and effective knowledge exchange of weather impacts on fire behavior.  
<http://www.flad.pt/tag/amanda-cunningham/>

### **APPENDIX 3: MEDIA INTERVIEWS and ARTICLES**

- **Jornal Noticias:** article published in JN on September 11, 2018
  - <https://www.jn.pt/nacional/especial/interior/bombeiros-e-meteorologistas-tem-de-falar-a-mesma-lingua--9827405.html>
- **RTP1:** TV interview held on September 10, 2018
- **JN Direto:** article published on September 14, 2018
  - <https://www.dn.pt/lusa/interior/incendios-bombeiros-e-meteorologistas-devem-falar-a-mesma-lingua---especialista-9848235.html>
- **RTP1:** TV interview held on September 14, 2018

### **APPENDIX 4: BIO/RESUMÉ**

Amanda Cunningham is one of a only a few experts in the world with extensive training and experience in both fire-meteorology and fire-behavior; in addition to her being both a wildland and structure firefighter. She holds nearly 15 years' experience in fire-weather forecasting with the US National Weather Service, along with 10 years as an instructor for various Wildland Fire Behavior Courses through the National Wildfire Coordinating Group (NWCG). Mrs Cunningham's professional focus has been on developing training on the impacts of atmospheric instability (cold fronts) on significant wildfires. She has presented her work throughout the United States and Internationally.