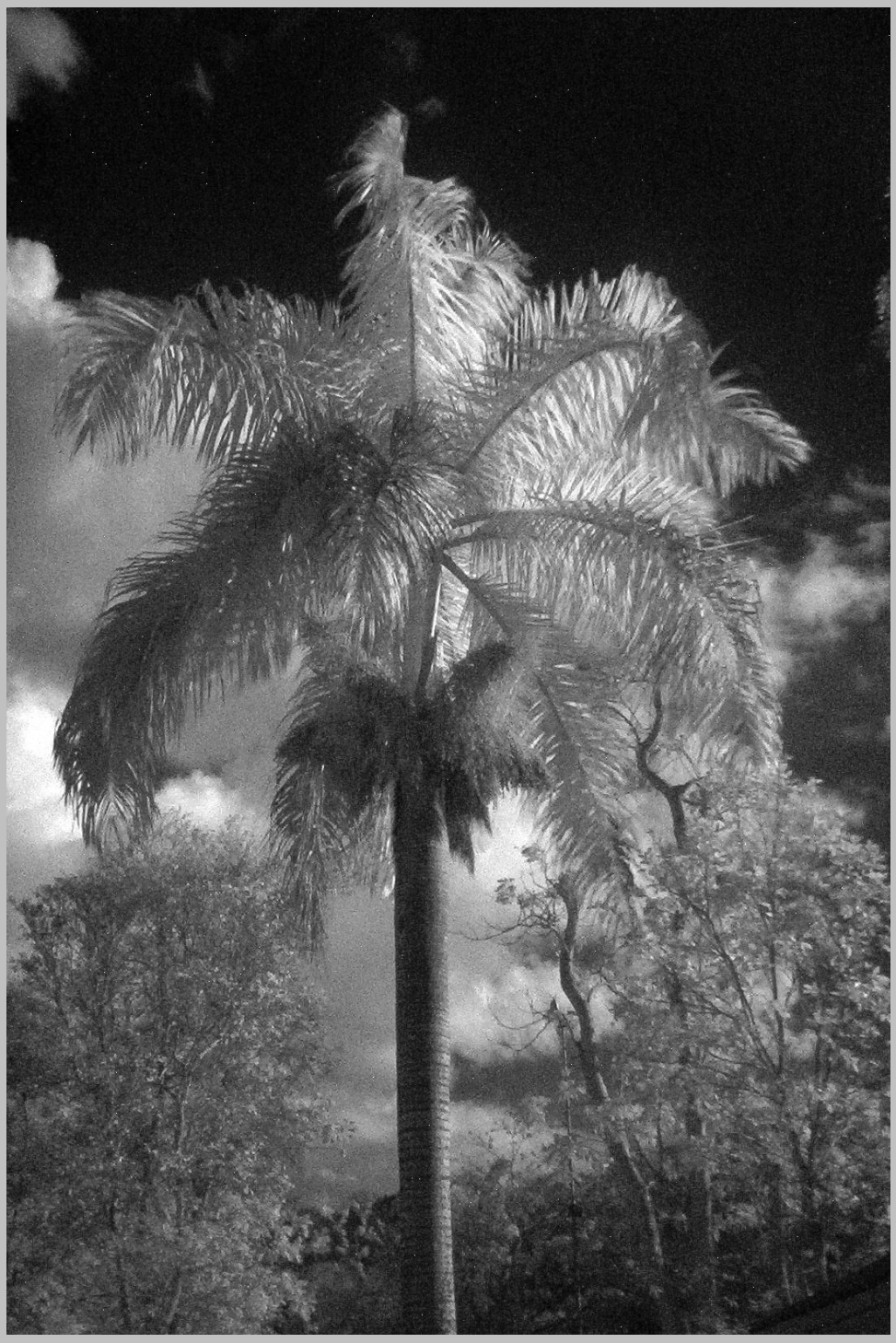
# The Infrared Album



## Armando Caussade

# THE INFRARED ALBUM

## Armando Caussade

San Juan, Puerto Rico
2015

# The Infrared Album

Written and illustrated by Armando Caussade.
First edition: November 30, 2015.



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## ABOUT THE AUTHOR

Armando is a bilingual astronomy educator who has taught at all levels of education, from primary school to university. His experience also comprises delivery of teacher training and continuing education, along with curriculum and course development. He has additionally taught other core STEM disciplines such as undergraduate mathematics and computer science.

After a competitive review process Armando was selected as a participant for the 2014–2015 Antarctic field season of PolarTREC, an NSF-funded professional development program. In January 2015 he traveled to the Amundsen-Scott South Pole station where he successfully conducted ten days of maintenance and support work at the IceCube Neutrino Observatory.

Armando's career includes over a decade in the information technology field, hence his affinity of computers. He is the president of the Puerto Rico Astronomy Society—an affiliate of NASA's Puerto Rico Space Grant Consortium—as well as a former NASA / JPL Solar System Ambassador. He is also a published author and editor with five works to his credit.

He regularly leads public science events which have

attracted a wide range of audiences. As a speaker he has presented hundreds of lectures to audiences as large as 500 people. His work has been widely reported by the media, with press coverage spanning all seven continents.

Practical astronomy has been a major factor throughout his life, with three decades under the night sky and eight telescopes owned. He enjoys photography as well—in both digital and film-based formats—specializing in landscapes, panoramas, infrared and astrophotography.

He lives, works and writes in San Juan, Puerto Rico.

## INTRODUCTION

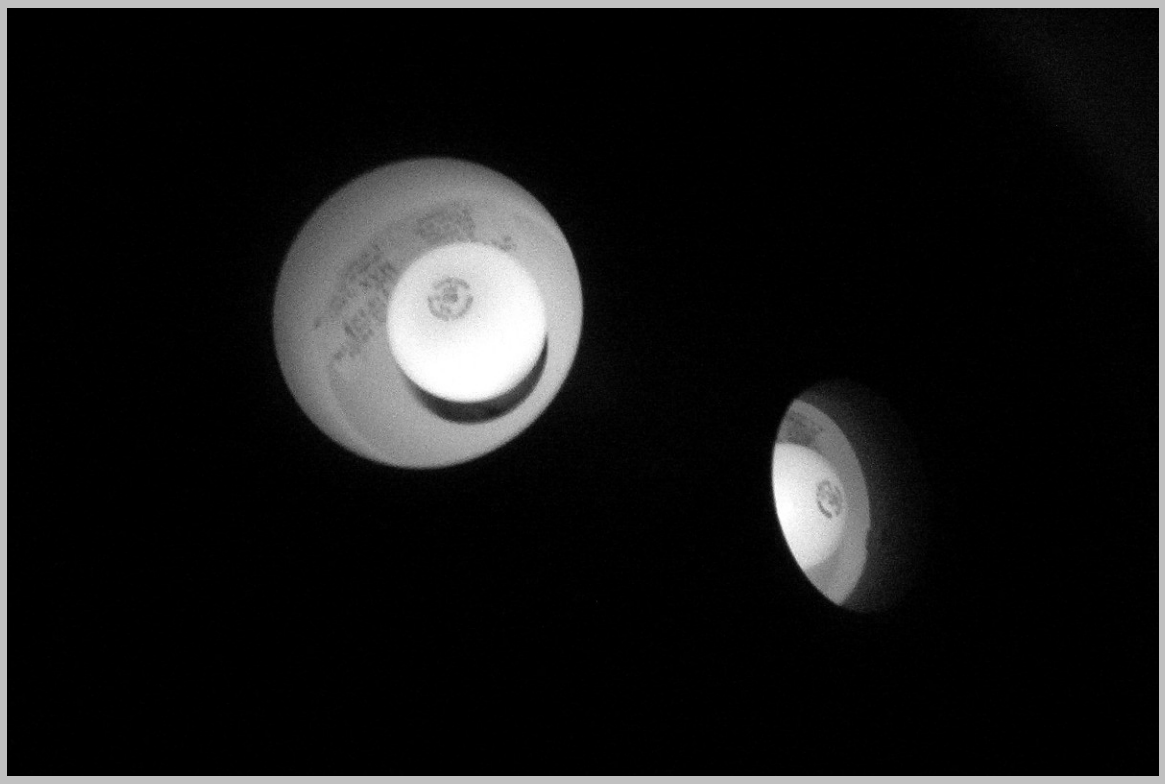
This photo book is made up of 32 near-infrared images obtained with a Wratten 87 filter, which blocks the full spectrum of visible light. All were taken using simple, unmodified digital cameras, either a Kodak CX6200 (pictures #1 to #22), or a CX7300 (pictures #23 to #32).

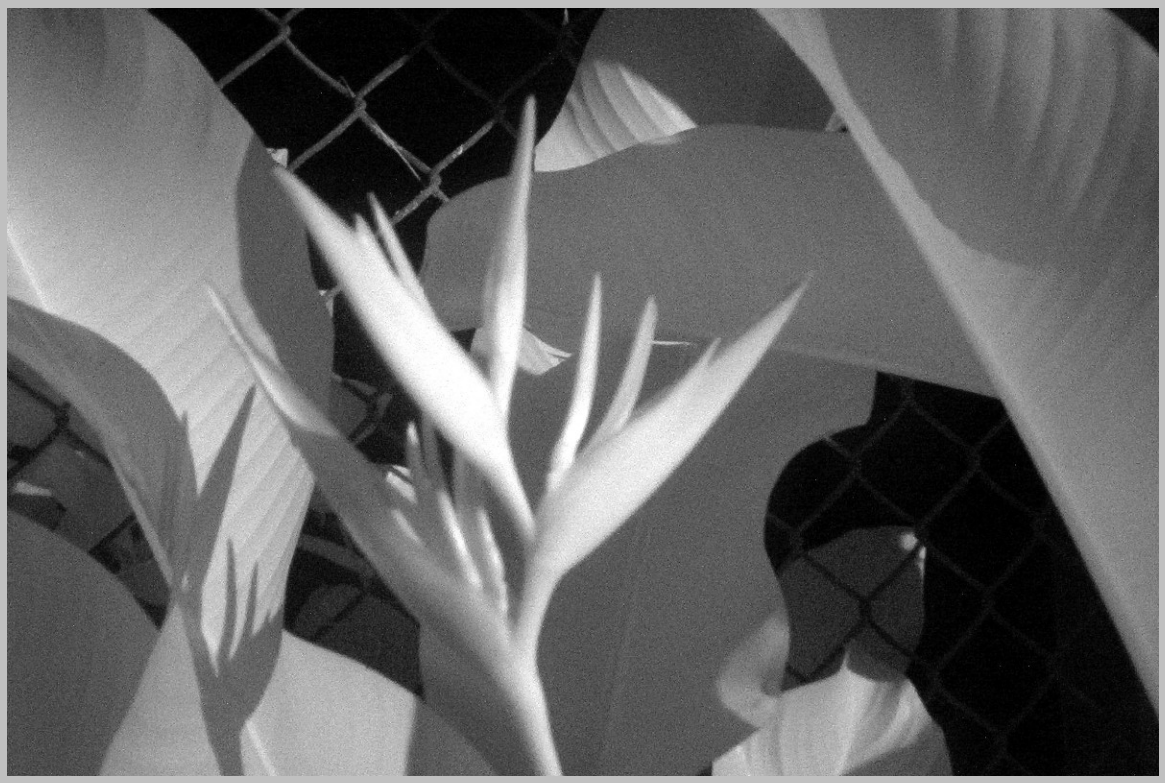
What makes this book different from other compilations is that each infrared shot comes together with its visible light counterparts. To avoid alignment errors each set of pictures was obtained with a tripod and within a few seconds.

This book also runs counter to prevailing trends, as my renderings of the infrared are strictly in grayscale. With the exception of astronomical imaging—in which colors are used to represent specific wavelengths of light—true infrared photography is always monochromatic.

All images were captured and digitally processed by me during a four-year period between 2005 and 2009. My preferred targets were urban parks, gardens and suburban areas around San Juan and Bayamón, Puerto Rico.

Vegetation is particularly suited to infrared photography, as it exhibits the *Wood effect* where foliage shows up as bright





white. This explains the fascination of infrared photographers—me included—with green spaces. Clouds, too, glow at these wavelengths and are also great targets.

Composing this book was both a fun and educational experience for me. It is my hope that you will both enjoy the photography in this book, and at the same time gain new knowledge on how light and energy work.

**Armando Caussade**

San Juan, Puerto Rico
November 2015

# 1. HOUSE WITH SPANISH TILES

**House with Spanish tiles**
Suburbs of the San Juan metropolitan area

San Juan, Puerto Rico
February 18, 2005 @ 12:46 pm

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## 2. SIDEWALK WITH PRUNED TREE

**Sidewalk with pruned tree**
Suburbs of the San Juan metropolitan area

San Juan, Puerto Rico
February 18, 2005 @ 12:48 pm

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## 3. HOUSE AT NOON

**House at noon**
Suburbs of the San Juan metropolitan area

San Juan, Puerto Rico
February 18, 2005 @ 12:50 pm

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| Next page, bottom: | Visible light image in grayscale | # 000_0332 |

# 4. STREET LOOKING SOUTH

**Street looking south**
Suburbs of the San Juan metropolitan area

San Juan, Puerto Rico
February 18, 2005 @ 12:53 pm

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# 5. SIDEWALK LOOKING NORTH

**Sidewalk looking north**
Suburbs of the San Juan metropolitan area

San Juan, Puerto Rico
March 10, 2005 @ 1:00 pm

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# 6. STREET LOOKING NORTH

**Street looking north**
Suburbs of the San Juan metropolitan area

San Juan, Puerto Rico
March 24, 2005 @ 1:09 pm

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# 7. SIDEWALK LOOKING SOUTH

**Sidewalk looking south**
Suburbs of the San Juan metropolitan area

San Juan, Puerto Rico
March 24, 2005 @ 1:11 pm

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# 8. SPANISH MILITARY ARCHITECTURE

**Ballajá Barracks**
Old San Juan

San Juan, Puerto Rico
March 11, 2006 @ 1:47 pm

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# 9. SPANISH NEOCLASSICAL ARCHITECTURE

**School of Fine Arts**
Old San Juan

San Juan, Puerto Rico
March 11, 2006 @ 2:02 pm

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# 10. OLD BUILDING ALONG THE COAST

**San Juan Bay**
Old San Juan

San Juan, Puerto Rico
March 11, 2006 @ 2:10 pm

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# 11. FORTRESS

**Fort San Felipe del Morro**
Old San Juan

San Juan, Puerto Rico
March 11, 2006 @ 2:15 pm

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# 12. WOODEN WATCHTOWER

**Wooden watchtower**
Julio Enrique Monagas Family Park

Bayamón, Puerto Rico
March 18, 2006 @ 1:42 pm

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## 13. BUNKER

**An old bunker from World War II**
Julio Enrique Monagas Family Park

Bayamón, Puerto Rico
March 18, 2006 @ 1:53 pm

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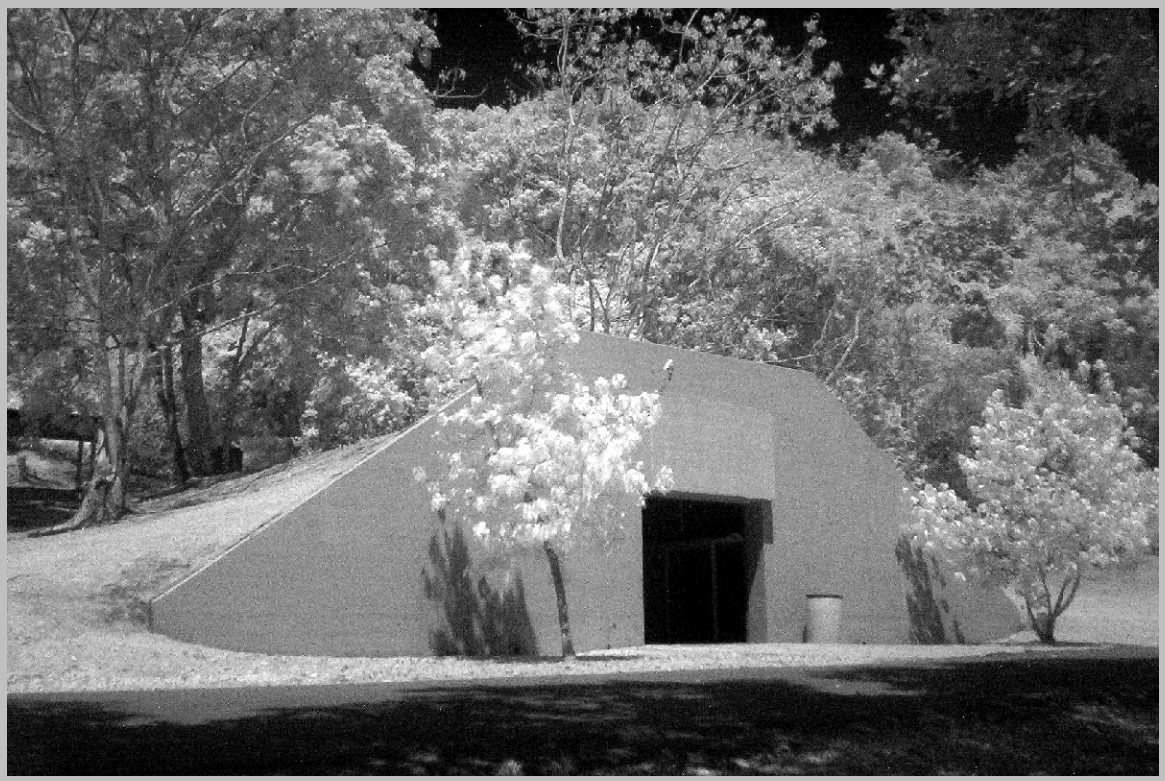

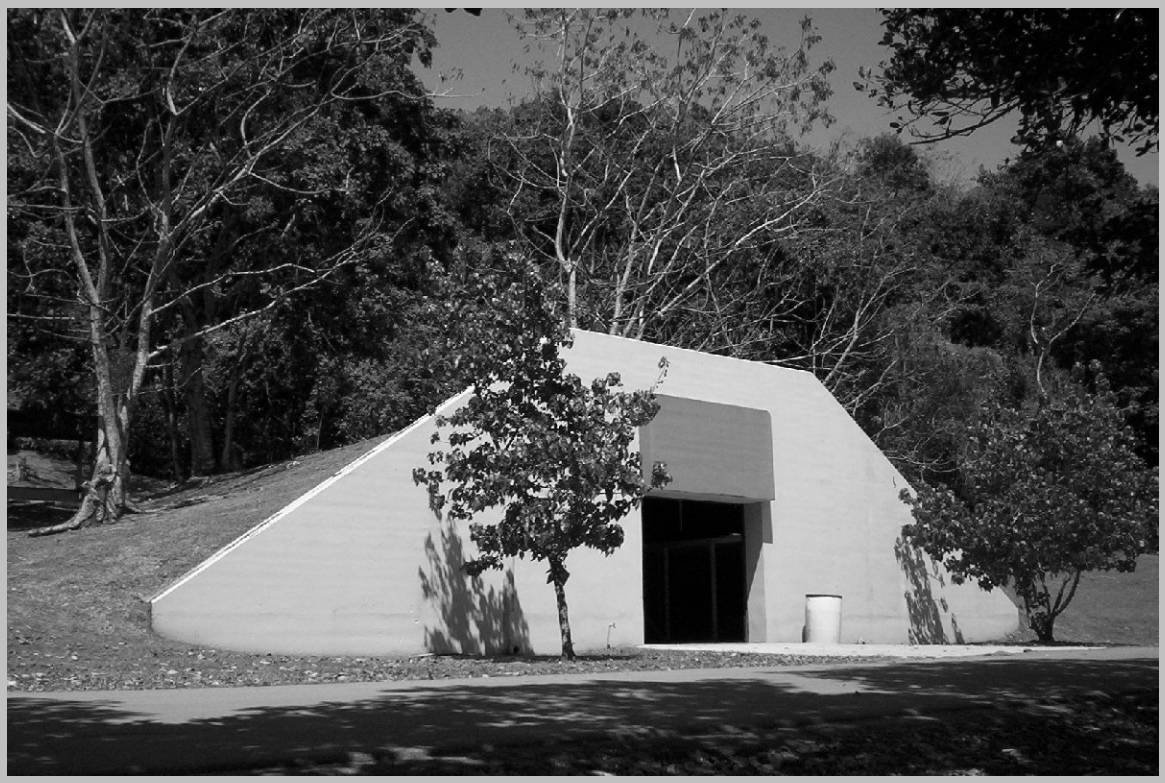

# 14. FALLEN TREE

**Fallen tree**
Julio Enrique Monagas Family Park

Bayamón, Puerto Rico
March 18, 2006 @ 1:57 pm

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# 15. SLIDES AND SWINGS

**Slides and swings**
Julio Enrique Monagas Family Park

Bayamón, Puerto Rico
March 18, 2006 @ 1:59 pm

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# 16. PALM TREES

**Palm trees**
Julio Enrique Monagas Family Park

Bayamón, Puerto Rico
March 18, 2006 @ 2:00 pm

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# 17. CLOSE-UP OF HORSE FIELD

**Close-up of horse field**
Julio Enrique Monagas Family Park

Bayamón, Puerto Rico
March 18, 2006 @ 2:01 pm

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# 18. BUNKER WITH ROAD

**Bunker with road**
Julio Enrique Monagas Family Park

Bayamón, Puerto Rico
March 18, 2006 @ 2:08 pm

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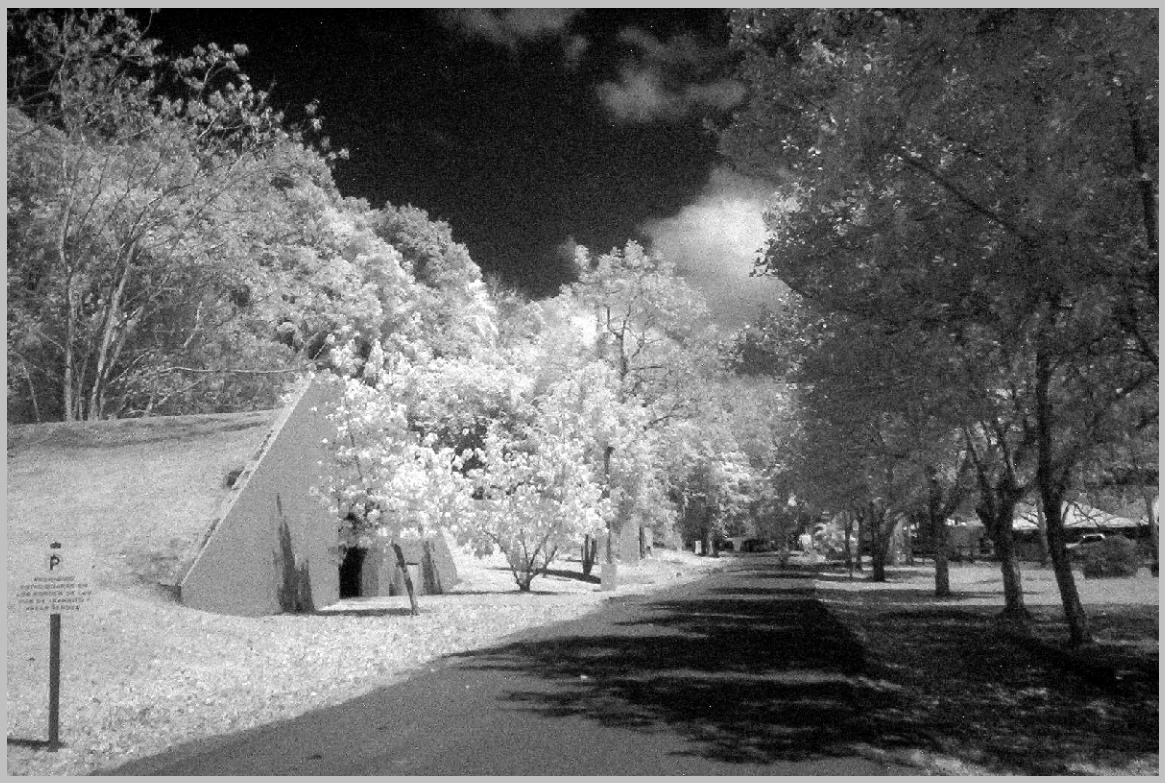

# 19. PANORAMA OF HORSE FIELD

**Panorama of horse field**
Julio Enrique Monagas Family Park

Bayamón, Puerto Rico
March 18, 2006 @ 2:30 pm

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# 20. TELESCOPES

## Solar-equipped telescopes
Julio Enrique Monagas Family Park

Bayamón, Puerto Rico
April 14, 2007 @ 4:48 pm

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## 21. ROYAL PALM

**Royal palm**
Julio Enrique Monagas Family Park

Bayamón, Puerto Rico
April 14, 2007 @ 4:50 pm

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## 22. GAZEBO

**Gazebo**
Julio Enrique Monagas Family Park

Bayamón, Puerto Rico
April 14, 2007 @ 4:52 pm

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# 23. BOARDWALK LOOKING WEST

**Boardwalk looking west**
Laguna del Condado Jaime Benítez Park

Bayamón, Puerto Rico
April 2, 2009 @ 11:41 am

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# 24. BOARDWALK LOOKING NORTH

**Boardwalk looking north**
Laguna del Condado Jaime Benítez Park

Bayamón, Puerto Rico
April 2, 2009 @ 11:42 am

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## 25. TRAVELLER'S PALM

**Traveller's palm**
Luis Muñoz Rivera Park

San Juan, Puerto Rico
April 2, 2009 @ 12:51 pm

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## 26. BEAUTIFUL LEAFLESS TREE

**Beautiful leafless tree**
Luis Muñoz Rivera Park

San Juan, Puerto Rico
April 2, 2009 @ 12:54 pm

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# 27. OLD TREE WITH BENCH

**Old tree with bench**
Luis Muñoz Rivera Park

San Juan, Puerto Rico
April 2, 2009 @ 12:58 pm

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# 28. WALKING PATH AT THE PARK

**Walking path at the park**
Luis Muñoz Rivera Park

San Juan, Puerto Rico
April 2, 2009 @ 1:00 pm

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## 29. TREE AT THE PARK

**Tree at the park**
Luis Muñoz Rivera Park

San Juan, Puerto Rico
April 2, 2009 @ 1:03 pm

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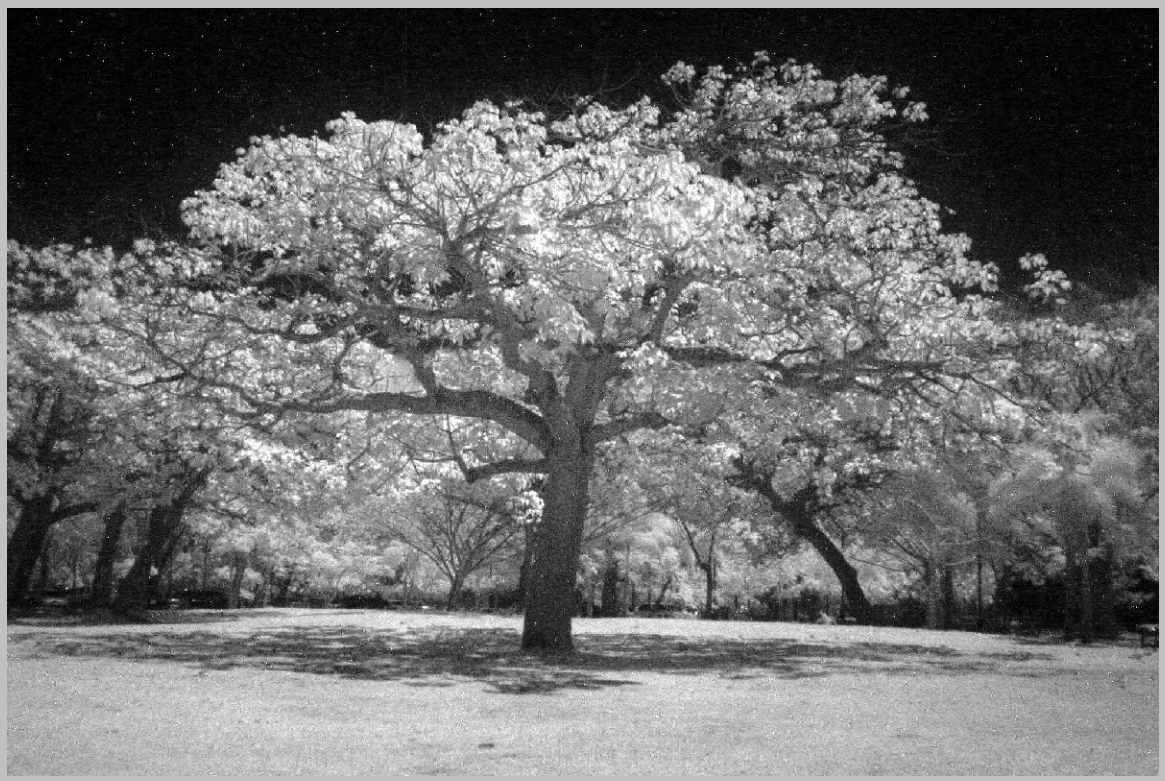

## 30. FOUNTAIN AT THE PARK

**Fountain at the park**
Luis Muñoz Rivera Park

San Juan, Puerto Rico
April 2, 2009 @ 1:06 pm

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# 31. COCONUT PALM

**Coconut palm**
Luis Muñoz Rivera Park

San Juan, Puerto Rico
April 2, 2009 @ 1:08 pm

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## 32. FLOWERING TALIPOT PALM

**UPR Botanical Garden**
University of Puerto Rico–Río Piedras

San Juan, Puerto Rico
April 3, 2009 @ 1:23 pm

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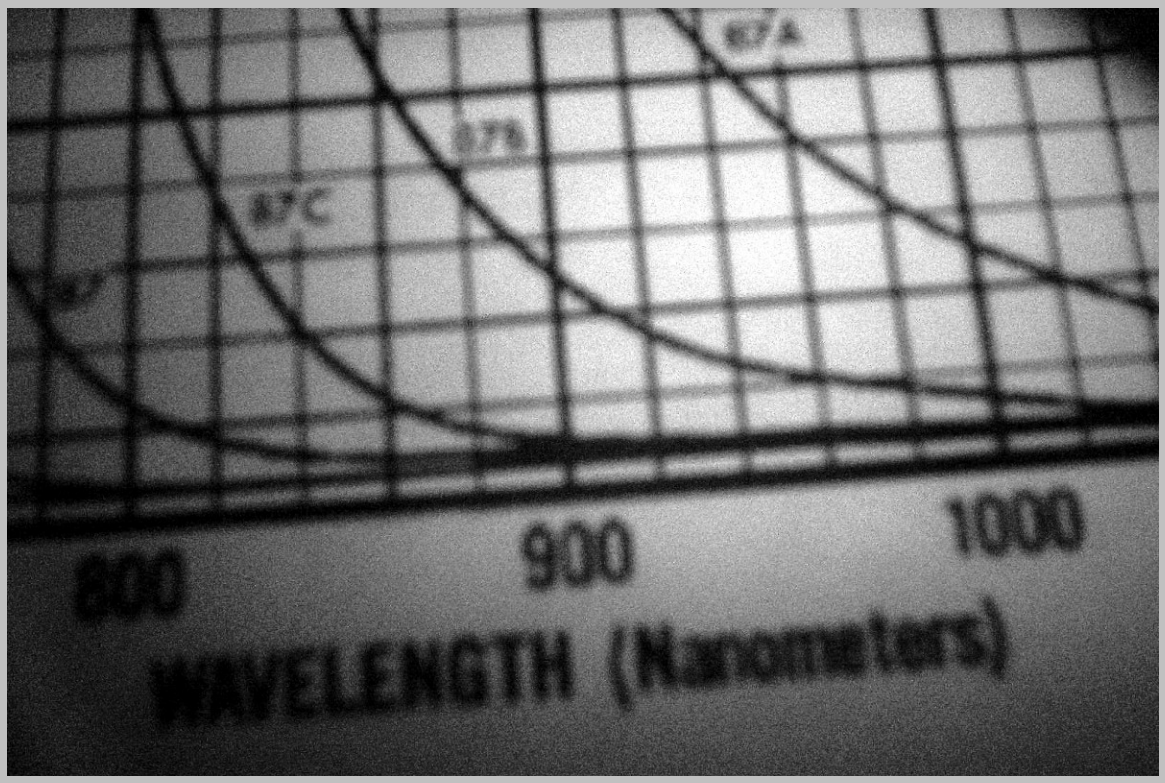
67A
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800
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WAVELENGTH (Nanometers)