WEBSITE-DASHBOARD(S) conceptual framework

K. Friday – draft 9/23/15 with questions for Jim/John in yellow

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| **OVERVIEW** | **“Marshall Islands Climate Outlook”**  **(Lead: John Marra & team)** | **“Vegetative Guide and Dashboard” (Lead: Katie Friday & team)** |
| Website address | Similar to  http://www.weather.gov/peac/Hawaii\_Regional\_Summary |  |
| Host (institution, server, maintenance) | UH/Manoa, which already services NOAA Climate Services sites | Preferences:  1-College of the Marshall Islands  2-another Marshallese agency recommended by CMI/R&D  3-UH/Manoa CTAHR NREM (fellow ag/forestry land grant) |
| Audience | Marshallese | Website/Dashboard home page(s) – prioritized:  1-agriculture/agroforestry professionals in the Marshalls (R&D, CMI, others).  2-community leaders in the Marshalls (mayors, schools, non-profit groups)  3-farmers and gardeners in the Marshalls  4-interested foreign partners and donors  Downloadable materials and links will vary in their intended audience |
| Content | “Recent” conditions (what exactly does this mean?)  Seasonal outlook  ENSO status?  Links to pages for sectors:   1. Agroforestry – one or more links to **“Vegetative Guide and Dashboard”** 2. Freshwater resources - ? 3. Emergency response - ? | A. Forecasting (1) “Recent” conditions (2) Seasonal outlook  B. ENSO (1) status (2) geospatial patterns in the Marshalls (3) Circular calendars & associated timelines (4) Agroforestry recommendations  C. Pacific Islands Vegetative guide  D. Appreciation of traditional crops  E. Long-term climate change |
| Updates – who & when | “Recent” – updated weekly? Automatically?  “Outlook”:  Quarterly updates based on professional consultation by NOAA Climate Services and other organizations | Some content: Self-populate from **“Marshall Islands Climate Outlook”** automatically  Some content: update by host on various schedules |

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| **“Vegetative Guide and Dashboard”**  **(inner view)** | **“Position” in website design** | **Audience** | **Objective** | **Content** | **Format/Graphics** | **How updated** | **Source** |
| A1-“Recent”  **conditions** | Home page | All | Convenient local weather predictions | rainfall, storms, inundation events | Gauges, link | Selfpopulate | NWS/NOAA |
| A2-**Seasonal outlook** | Home page | All | Act based on seasonal outlook | 3-month predictions rainfall, storm prob., sea level | Gauges, other symbols, map, (text), link | Selfpopulate (quarterly) | NOAA |
| B1-**ENSO status** | Home page | All | Awareness | ENSO status | Dial + words | Selfpopulate | PEAC |
| B2-**ENSO geospatial patterns** | Home page, 2ry pages | All – esp outer islands | Educate concerning ENSO patterns | ENSO climatology; <=12 month predictions | Maps | Selfpopulate | NOAA |
| B3-**Circular calendars** & associated timelines | Home page | All | Educate concerning ENSO | ENSO climatology | Display one circle & one graph | Selfpopulate when ENSO phase changes | Advisory council |
| B4-**Agroforestry recommendations for ENSO phase** | Home page, 2ry  pages | All | Act based on ENSO phase | ENSO-based Ag/AF advice | Varies with products | Selfpopulate when ENSO phase changes | Advisory council |
| **C1 – species choices** | 2ry  pages | Marshalls AF professionals, all | Species selection | Affirm key resilient species, provide links to further info | Text and ID pictures | Occasionally | Advisory council |
| **C2-Pacific Islands Vegetative guide** | complex user interface | Marshalls AF professionals (need training) | Species selection | Env. parameters for tree & crop species | TBD | Often, by NRCS | USDA NRCS |
| **D-Appreciation of resilient crops** | 2ry & 3ry pages | Marshalls AF professionals | Promote resilient crops | Crop-based Ag/AF extension advice | Varies with products | Ongoing, by host | Many sources |
| **E-Long-term climate change** | One 2ry  page | Marshalls AF professionals | Synthesize knowns & unknowns | 50-100+ years’ change | Paragraphs, links, graphics | Ask NOAA annually | Pacific climate change science |

**“Vegetative Guide and Dashboard”** (zoom in view):

**Topic A1: “Recent” (Realtime/Current/nearterm) conditions**

**Website design (position):** home page

**Audience:** All

**Objective:** attract viewers by linking directly to the best available weather forecasting specific to the Marshalls. (Generally one hopes that radio and the weather community is handling communications; this project is not trying to become the weather station.)

**Content**: rainfall, storms, inundation events. *Have our interviews have revealed some particular need for certain metrics for the ag/forestry community?*

**Format/Graphics:**

* Select from gauges etc. offered from the **“Marshall Islands Climate Outlook”**
* Rainfall – can we have a map of the entire Marshalls, showing absolutes or % above/below normal, but for real data (ie past month)?
* For more information, link back to **“Marshall Islands Climate Outlook”**

**How updated**: selfpopulate from **“Marshall Islands Climate Outlook”** (or its underlying sources)

**Sources:** NOAA **““Marshall Islands Climate Outlook”** (or NWS)

**Topic A2: Seasonal outlook**

**Website design (position):** home page

**Audience:** All

**Objective:** Readers will be informed by medium-term forecasts, enabling them to plan their own ag/forestry activities

**Content**: ~3-month predictions of

* rainfall
* storm probability (1) typhoons & tropical storms actually hitting the islands (2) wave trains from northern storms
* relative sea level (can use standard deviations – below/marginal/normal/marginal/above – as in PEAC newsletter)

**Format/Graphics:** dials, simple symbols.

* For rainfall – need to avoid the question – is it blue because it’s the wet season, or because it’s a wetter-than-usual dry season. Consider: (1) dial (2) symbolic glass filled with some relative amount of water, of a color corresponding to the maps, but also a mark on the glass showing how full it would “usually” be at that time of year (3) graph showing average/normal absolute rainfall as background curve representing normal wet and dry season, with current/recent conditions and seasonal outlook overlain on top of it.
* For sea level – consider (1) dial (2) a post in the water, with the “average” waterline marked, and the sea level high or low (3) graph such as on p. 6 of Lander’s July newsletter
* Storm probability – some symbol

**How updated**: selfpopulate from **“Marshall Islands Climate Outlook”** (or its underlying sources)

**Sources:**

* NOAA **“Marshall Islands Climate Outlook”**
* “Climate Impacts and Outlook” – quarterly newsletters <http://www.weather.gov/peac/impacts> each including four panels: (i) significant events & impacts of past quarter (ii) regional climate overview of past quarter, including sea surface temperature and rainfall (iii) sectoral impacts for past quarter, covering water resources, coastal hazards, facilities/infrastructure and natural resources (iv) regional outlook for coming quarter, covering precipitation & storms. References to various countries, mostly regional maps. (contact: John Marra),
* “Pacific ENSO Update – quarterly bulletin of the PEAC” <http://www.weather.gov/peac/update> with regional summary followed by island-by-island summaries [primary author Mark Lander?]
* [**http://www.weather.gov/peac/sealevel**](http://www.weather.gov/peac/sealevel) **[PEAC Seasonal Sea Level Outlook]**
* PEAC Seasonal Rainfall Forecasts/Outlooks for each high/main island, projections for coming quarter by different organizations, w/probabilities: <http://www.weather.gov/peac/rainfall_new>
* “Pacific Climate Information System” (by John Marra) <http://www.pacificcis.org/dashboard/>

**Topic B1: ENSO status**

**Website design (position):** home page

**Audience:** All

**Objective:** Viewer can easily find out what the current ENSO phase is

**Content**:

* Words: Neutral [is that the same as “NA: ENSO Alert System is not active”?] / El Nino [La Nina] watch / El Nino [La Nina] Advisory [it’s happening].
* “strong” vs “weak”
* Should the website present Southern Oscillation Index (-2.5 to +2.5) – current or 3-month average? Or, “Nino 3.4 region [Sea Surface Termperature] anomaly” in degrees Centigrade? This would give an indication of “strong” or “weak”?

**Format/Graphics:** dial + words

**How updated**: Selfpopulate from link below, or rely on someone?

**Sources: (both seem to be monthly text)**

* <http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.html>
* <http://www.cpc.ncep.noaa.gov/products/CDB/Forecast/forecast.shtml>

**Topic B2: ENSO geospatial patterns**

**Website design (position):**

* Home & secondary page would show map of “recent” rainfall conditions (see topic A1) and/or “outlook” (topic S2)
* Tertiary page could show maps of future conditions for a “typical” ~1-12 months into the future for this ENSO phase, and/or simplified user interface for maps of rainfall and drought across the Marshall islands for different seasons of the El Nino-La Nina pattern, or secondary page could just link to the atlas) (topic B2)

**Audience:** All, especially atolls beyond Majuro & Kwajelein

**Objective:** Viewer can see how the current ENSO phase fits in a 3-12 month pattern relative to neutral/average conditions, for all atolls, not just those with weather stations

**Content**: rainfall relative to “normal” for each month or season (for Marshalls only, for the current ENSO phase)

**Format/Graphics:** maps as found in the atlas, but with more captions of island names

**How updated**: Selfpopulate from the atlas, depending upon current ENSO phase

**Sources:** NOAA atlas <http://developarc.maps.arcgis.com/apps/MapSeries/index.html?appid=411ccedeadb14a2392bf21a4a2ae037e>

**Topic B3: Circular calendars** & associated timelines

**Website design (position):** Home page would always display one circular calendar and one graph appropriate to the current ENSO status (Topic B1).

**Audience:** All

**Objective:** Viewer can see how the current ENSO phase fits in an 18-24-month pattern relative to neutral/average wet & dry seasons

**Content**:

* A downloadable poster will include ~three circular calendars (El Nino, neutral/average, La Nina), each with a graph showing an 18-24 month timeline. This will educate concerning the overall patterns of rainfall, storm probabilities, sea level, and crop management (especially harvesting and processing/storage).
* The home page at any given time will display one calendar and one graph for the current ENSO phase

**Format/Graphics:**

Symbols etc; need help from a graphic artist. Associated text covered in topic B4.

* Circular calendars – need graphic artist
* Graphs would use rainfall data from the 2015 atlas but would be on an absolute scale showing normal/neutral wet/dry season, as is done at <http://www.cpc.ncep.noaa.gov/pacdir/Natlasdir/HTML3dir/maju3.html>
* Can we program a “You are here” or “This is now” to automatically move itself with the date?

**How updated**:

* Three alternative sets of circular calendars and graphs should self-populate based on the ENSO phase.
* The underlying content should be reviewed and updated periodically as science & management improve.

**Sources:**

* **Harley Manner’s interviews & literature search**
* NOAA atlas <http://developarc.maps.arcgis.com/apps/MapSeries/index.html?appid=411ccedeadb14a2392bf21a4a2ae037e>
* <http://www.weather.gov/peac/enso> **“ENSO and Climate Variability”**
* <http://pacificstormsclimatology.org/index.php?page=overview-wnp>
* [**http://www.weather.gov/peac/tropical**](http://www.weather.gov/peac/tropical) **[storm climatology]**
* It would be ideal to have an advisory council including local & external ag/forestry & climate people to expand/improve this over the years

**Topic B4: Agroforestry recommendations for ENSO phase**

**Website design (position):** Basic recommendations on home page with links to secondary pages for subtopics, which in turn would link to numerous other websites and downloadable .pdfs. Ideally there would be ~three sets of recommendations (El Nino, La Nina, neutral) and the home page would populate/display the appropriate set (with links) depending upon the current ENSO phase. A lot of the secondary pages and links would be to the same info as under topic D.

**Audience:**

* Webpage: 1-agriculture/agroforestry professionals in the Marshalls (R&D, CMI, others); 2-community leaders in the Marshalls (mayors, schools, non-profit groups)
* Downloadable, printable .pdfs of posters, brochures, etc: 3-farmers and gardeners in the Marshalls

**Objective:** Readers will be steered to long-term preparatory actions appropriate to the current ENSO phase.

**Content**: agriculture/agroforestry system advice (planting, maintenance, harvesting, preservation) tailored to the current ENSO phase.

**Format/Graphics:** Home page: list of 3-5 general recommendations; this list would differ depending on the current ENSO phase.

**How updated**: Host should

* regularly check for broken links
* select materials for accuracy, appropriateness, etc., in consultation with partners

**Sources:**

* Harley Manner’s interviews & literature search, including advice from R&D and CMI
* Red Cross and Vanuatu examples
* It would be ideal to have an advisory council including local & external ag/forestry & climate people to expand/improve this over time

**Topic C1: Resilient species**

**Website design (position):** Secondary page

**Audience:** Agroforestry professionals in the Marshalls and gardeners

**Objective:** Affirm key resilient species, provide links to further info

**Content**: Highlight some major local resilient species, and provide links for further information.

**Format/Graphics:** Mostly text, links, and pix of major species

**How updated**: Host should consider updates in consultation with partners

**Sources**: Craig Elevitch and Nancy Vandervelde’s publications, other literature located by Harley Manner

**Topic C2: Pacific Islands Vegetative guide**

**Website design (position):** The user interface would be linked to from the secondary page for C1. The existing user interface, on the USDA NRCS website, will need redesigning to get the user directly into Marshalls-specific information.

**Audience:** Agroforestry professionals in the Marshalls, who will likely also need face-to-face training to become comfortable with this, even if the user interface is optimized.

**Objective:** User accesses species database to obtain a list of species appropriate for given environmental parameters

**Content**: Crops, trees and other agroforestry species that are already present in the Marshalls and screened to eliminate invasives. Environmental parameters include rainfall & soil requirements, tolerance to salt, etc.

**Format/Graphics:** TBD

**How updated**: NRCS will update the underlying database any time improvements are brought to its attention

**Sources**: NRCS expertise

**Topic D: Appreciation of resilient crops**: extension advice, nutrition, recipes, ethnobotany

**Website design (position):** One secondary page, linked to from the home page; probably tertiary pages for subtopics. These page will have links to numerous other websites and downloadable .pdfs.

**Audience:**

* Webpage: 1-agriculture/agroforestry professionals in the Marshalls (R&D, CMI, others); 2-community leaders in the Marshalls (mayors, schools, non-profit groups)
* Downloadable, printable .pdfs of posters, brochures, etc: 3-farmers and gardeners in the Marshalls

**Objective:** Increase appreciation/desirability and facilitate planting/harvesting/cooking of resilient crops, which will mostly be traditional crops.

**Content:**

* Overview paragraph(s): traditional species have proven resilient in the past and are resilient with ENSO and climate change impacts. These traditional species have multiple values (food, medicine, fiber, etc.). Compared to processed foods, they have vitamins and fiber to maintain health and help prevent non-transmissible diseases
* crop-by-crop and general agriculture/agroforestry system advice: planting, maintenance, harvesting; also contact information for sources of assistance (R&D, CMI, Taiwan mission, etc.)
* Nutrition and health information promoting traditional/local fruits, vegetables, and complex starches; also contact info for sources of assistance
* Preservation & Recipes
* Policies and current events
* Ethnobotany & pride

**Format/Graphics**: overview paragraph(s) and graphics helping to guide people in which links to follow. Most of the websites and downloadable .pdfs will be from other projects, but any created for this project will have a lot of graphic design for public audiences.

**How updated**: Host should

* regularly check for broken links
* invite partners to provide materials/websites to make this a one-stop-shop
* screen such materials for accuracy, appropriateness, etc., in consultation with partners

**Sources**: CMI, R&D, Taiwan mission, WUTMI, Jonathan Deenik’s nutrition/health project, RMI health projects, Island Foods, etc.

**Topic E: Long-term climate change** for the Marshalls

**Website design (position):** Keep this all on **one secondary page**, linked to from the home page

**Audience:** agriculture/agroforestry professionals in the Marshalls (R&D, CMI, others); also others

**Objective:** Synthesize the best available science - “probably knowns” and “unknowns” about long-term climate change projection for the Marshalls. For “unknowns” – acknowledge, for example, the extent to which models contradict each other or contradict trends. For “probably knowns” – summarize implications for agriculture/agroforestry.

**Content**: Changes after 50-100+ years in Sea level, temperature, rainfall, storms & inundation, ENSO, freshwater resources. Implications for agriculture/agroforestry.

**Format/Graphics:** A few paragraphs for primary audience. Links to other materials for various audiences: scientifically literate; teachers; other quality materials as available. Some graphics TBD.

**How updated**: Annual consultation by site host with NOAA

**Sources:**

* Primary source & link to this for scientifically literate audience: <http://www.pacificclimatechangescience.org/publications/reports/climate-variability-extremes-and-change-in-the-western-tropical-pacific-2014/>
* Link to this for teacher/school audience: Chip Fletcher & PREL’s pub

HOME PAGE