



**Predictive Services  
Diamond Bar CA  
Fall 2014**

**Minutes**

DAY 1 Nov. 12th

Attendees: In person – Chairman Tom Rolinski, SOPS Predictive Services; Dave Deboer, Mark Bassett and Kevin Durkee, all South Coast AQMD; Ron Arbo, Calfire SOPS; Jana Lewis, Calfire Sacramento; John Snook, NOPS Pred. Services; Elizabeth Berrera, USFS; Russ Gripp, USFS; Jeff Shelton, Orange Co. FA; Dave Gomberg, NWS Oxnard; Corky Conover, NPS; Steve Vanderburg, SDGE; Jay Lopez, LACOFD; Mark Jackson, NWS Oxnard; James Gannon, BLM Remote- Cathy Johnson, USFS NOPS Intel; Claudia Bell, NWS WRH; and for a presentation, Tim Brown

- 1 Updates regarding NOPS and SOPS fire seasons, and updates on Predictive Services programs at their GACCs (John S and Tom R) – North Ops had a busy season, and about 10 times the 2014 fire acreage of puzzlingly quiet South Ops. It was recognize though, that there was still plenty of large fire potential in the Santa Ana prone parts of southern CA.
2. Intel update, North Ops (Cathy J.) North Ops had 4007 fires for 48,124 ac. For the past 10 years, this ranked 7th for number of fires but 2nd in acreage burned. Team assignments included 8 T-1, 12 T-2, and 8 State teams (28 total). We had steady IA in June, before thunderstorm activity increased in July, with the eastern NOPS forests getting a lot of lightning fires. GACC-average ERCs hit the 90th percentile in mid-June and 97th percentile initially on 8/1 and again for bulk of first half of September. Lightning events were less wet in late July and winds increased on a number of existing fires at the start of August causing large fire growth on Day, Bald, Eiler and Lodge fires. North Ops went from PL2 to PL5 in just a few days. The Happy Camp complex went on for over 2 ½ months. Small mountain towns were affected, such as Burney and Weed. Fire season was very active through August with a lot of structure loss and smoke issues.
3. NWS (Mark J.): San Diego NWS is in the process of splitting Orange County to separate out the coastal sections from inland sections. Jeff S. asked what station(s) will be used for weather in the new Zone? There is an NWS ‘service change notice’ out about the coming change. NWSMedford is instituting new Red Flag criteria. Despite part of SoCal having their driest 3-year and 8-year periods on record, it was a quiet IMET year for Oxnard...just one 14-day deployment. Overall, there were 40 total IMET dispatches in CA during 2014. Regarding the wintertime Colby fire (foehn wind-driven) near Glendora last January, the Debris Flow response plan has gone well so far. Critical rainfall rates are considered to be those exceeding 0.5” per hour. Due to the drought and lack of regrowth of plant cover on the soils, the area will still be treated per the ‘first year rainfall rates’ even as they move into year two after mid-winter. Glendora is the city most likely affected, if any. Meanwhile the city of Camarillo had a ‘mud

flow' due to an overflowing catch basin. This was not a 'debris flow'. The city was and is responsible for keeping the catch basin workable, but they can't afford to do so.

#### 4. Fire Agency Reports (various reps to the PS Group):

CALFIRE (Jana L. and Ron A.): Had greater ignitions but fewer acres. Statewide there were 2843 fires (about 100 less than in 2013) for 83,610 ac. (compared to ~110,000 ac last year). For Local areas, i.e. contract counties, there were 800 fires (which was > than in 2013), for 8302 acres, a similar acreage total to the 8382 acres last year.

LA County (Jay L.): Like CALFIRE, in the extreme drought, they felt like they had really been 'dodging the bullet' in 2014. They'd hit everything with a heavy response, but that is not sustainable. They are now observing rate of spread before further determining best response level. They depend heavily on the Daily Fire Danger report.

BLM (James G.): The Bald, Eiler and Day fires (in NE California mainly during late July and early August) each had BLM lands involved. BLM DPA was about 80 ac and CALFIRE DPA about 360 ac. James noted that the Mojave Preserve now has knee high grass following the ample monsoonal moisture of the 2014 summer.

NPS (Corky C.): The drought kept spring 2014 burning limited. The NPS in CA had 3 large fires this past year, all in or near Yosemite NP (El Portal, Meadow, and Dog Rock(?)). Corky is retiring soon, and the Group acknowledged his years of hard work and contributions in many ways. He noted that when he retires, as a cost-saving measure the NPS does not currently plan to fill his job. The Regional RAWS oversight duties will be handled out of Portland OR.

Orange Co. FA (Jeff S.): The Authority is 'in between Chiefs' right now. Their main large fire of the year was the Silverado, at just under 1000 ac. They are preparing for the wintertime debris flow issues, which are inevitable. Jeff helped out in North Ops a lot in 2014. He also worked with a ARA on a fire in central California. The Unit is working on Solar Rad issues. They did some research and defined their OCFA areas in the current WUI, that have the highest fire potential, based on past weather and current fuels conditions. They are looking toward a capability of automated staffing and dispatch. Jeff mentioned the GSAN task book need (Geospatial Analyst). He said the Sands Fire drone camera footage on YouTube is quite impressive, and that drones represent one of the waves of the future in our work. The aviation side of the fire agencies is concerned about drone usage...it will be the FAA that has the 'final word' on what gets allowed, versus not allowed. As far as POW items go, Jeff couldn't yet provide feedback from Nelson-derived HourlyFD, because of the OCFA solar rad issues.

5. Plan of Work Review (led by Tom R, group Chair): We started with a quick look at the charter. Jeff Shelton had a suggestion to expand and improve the mission statement. Tom recorded the changes/ updates to the POW.

6. Santa Ana Wildfire Threat Index – SAWTI briefing (Tom R.): This major accomplishment of Tom and colleagues in South Ops was rolled out on Sept. 17th. It is a product that evolved out of the old 'Offshore Flow Severity Index' of a few years earlier. Tom gave us a thorough but concise briefing on the project. Partners included San Diego Gas and Electric, UCLA, DRI, and South Ops Predictive Services, and overall more than a million dollars was spent in development and testing. One benefit of the data legwork needed to build the working system is that there is now a comprehensive, robust climatology that goes back 30 years. This can help put any given Santa Ana 'event' into historical perspective. Website is <http://psgeodata.fs.fed.us/sawti/>

7. Hourly Fire Danger Phase II update (Tim Brown):

We continue to work toward completion of the tasks of Phase II. Tim showed a 24-hour loop ex. ( <http://www.cefa.dri.edu/HourlyFD/flashloop.php?domain=fullca> ) which you can click on from the main website: <http://www.cefa.dri.edu/HourlyFD/> . Tim is also aiming to have 24-hour histograms available for any given station. Tim queried the group for thoughts on how we might like it displayed. One idea (that seemed well received) was bar graphs, with the 5 HFD levels vertically on the Y-axis, shown versus time to the right along the X-axis. Tim said as far as we can tell, the Nelson version of HFD is working correctly now, and he suggests that we concentrate on that version <http://www.cefa.dri.edu/HourlyFD/Nelson/> . This was captured as a possible Action item for the Group (i.e. to become familiar with and use Nelson version of HFD). Related to the use of Nelson (which is automatic for solar-radiation equipped stations) is the question of what historical data to use. We discussed whether to use full Period of Record (1999-2002) and if there were draw-backs to that. Russ G noted that nearly all RAWS stations now have Solar Rad sensors for at least 5 years. Tim felt we should compute percentiles by month (not for entire years). In other words a 92nd percentile on July 8th would mean 92nd percentile for within July data only, not over entire season. Tim also said that percentiles will be provided for each hour of the day. Tim's had a key question to the Group: Is it acceptable to just use the existing period of record? Action: DRI will create time series, plots, and compute hourly percentiles for both ERC and BI. The group also confirmed that the offered GoogleEarth version would be welcome. In another item under this main topic, Russ asked Tim if the station information (that you get down in the lower right corner of the screen when you click on a station on the Map) could be displayed "as it used to be"? It turns out that this particular display issue is only there using Internet Explorer. There is not a problem when using Chrome, Firefox, or Safari. Russ also told the group that the Fire Danger Committee he is on has found some issues in the hourly solar rad data. These are probably 'calibration issues' in the data, relating to when stations first getting solar rad sensors about 2001 got their first sensor swaps after that (~2004).

DAY 2 November 13th, 2014

[Re: Mtg Attendees: Ralph Domanski. Via conf call/VTC: Alex Hoon of NWS Reno, Cathy Johnson of NOPS Intel, and Dar Mims of CARB]

8. NFDRS Proposed Changes (Russ G): This was one of the more impactful topics of our entire meeting. Russ told us that our Group has a critical role in the eventual success of this NFDRS change endeavor. It will be known as NFDRS '16, and it's the first revision since the 1988 update (which was when KBDI was added). The core 'nuts and bolts' of NFDRS have been mostly static since the original 1972 version. Russ reminded us that Fire Danger and Fire Behavior are two different tools with different purposes. Some of the key things that will differ with this coming change are the Dead Fuel Moisture Model, the Live Fuel MM, and the overall Array of models. The Outputs of the system will not change, i.e. there will still be the familiar ERC, BI, SC, and IC outputs. Regarding fuel models, there will be 4 main fuel types, based on response times... i.e. faster to slower responses. There are currently 40 total models (20 in each of the 1978 and '88 revisions) so a drop to 4 (presently referred to as W, X, Y, and Z, from the faster to slower response, respectively) is a significant change for users. In the FDC's 'making the case' for necessity of this change, Russ offered the following:

- NFDRS has proven 'too complex' for a sizeable share of its practitioners.
- Nationally, Fire Danger expertise is diminishing (there are some key retirements in next few years)
- Most fatality investigations cite a 'lack of knowledge of local fire danger' as a contributing factor
- This will better prepare NFDRS to integrate into future weather data uses (like in gridded data)
  - The groundwork for this change is now over a decade in the making:
    - Solar radiation will be a key component
    - Evaluation of new model performance (such as Nelson) has been ongoing
    - It will now apply the many lessons that have been learned along the way

Among 'key fixes' NFDRS will accomplish is the replacement of Burgan's Live FM Model, which has been acknowledged as a 'weak link' in the original system. It will be replaced with Matt Jolly's Growing Season Index (GSI). One benefit will be the elimination of station managers needing to declare 'Green Up' dates in the spring and 'Freeze' dates in the fall. Bottom line: less human intervention will be needed. GSI is currently being tested in WIMS. Regarding the Dead Fuels, NFDRS has used the Fosberg model since inception in the 1970s. Fosberg uses daily weather info, and requires manual entry of State of the Weather and a 'wet fuels' code. It is calibrated for mid-afternoon conditions. The Nelson model requires no human intervention, and has been available in a prototype mode in WIMS since Dec. '11. The Nelson model is currently only applied to 1-hr and 10-hr dead fuels, and it's not sure yet if and when 100-hr and 1000-hr might be incorporated. Automated SOW is not part of the Nelson model itself, but the automated SOW, which is based on solar radiation and past 24-hr precipitation, was made available in conjunction with the Nelson model. Lastly, based on testing to date, the Nelson model calculated 10-hr FM is typically found to be within 1% of a weighed fuel stick in the same environment. Lastly, about the consolidation of Fuel models within NFDRS '16, a bit of history. John Deeming had originally proposed only 9, but NFDRS ended up with 20. A 'similarity analysis' done on the existing NFDRS fuel models had useful results, leading to the new W, X, Y, and Z classes of fuels.

Here is a list of time frames for recent events and moving forward:

Sep 2014- NFDRS 16 received approval from NWCG to proceed

Dec 2014 - Technical documentation is to become available

Jan 2015 - Continued development on NFDRS 16 and move to the WIMS 'testing site'

Jul 2015 - Develop webinar/ self-paced training for prior S-491 students to become familiar w/ the new system. Also, Fire Family Plus to be updated to include NFDRS 16

Jan 2016 – 'Throw the switch' in WIMS, moving NFDRS 16 from the Test to the Production side

Jan 2018 – Discontinue support of 1978 and 1988 versions of NFDRS

Russ stated at the end that other groups who need this NFDRS presentation include CWCG and the Center Mgrs.

#### 9. RAWS Updates roundtable (entire Group):

BLM (James G): Five newer BLM stations have been out for about 3-4 years now. They have plans to move or decommission several that are out in the Ridgecrest area, as they are currently

too closely bunched. Panamint (Death Vly) moving ~ 2 miles, to a place more easily accessed.

Waiting on a review re other station placements.

CALFIRE (Jana L): Biggest issue is getting old dataloggers replaced with newer. Brazzi Ranch in Siskiyou Co. is an example of one for which this was recently completed. CALFIRE wants to plan, in this next year, for the replacement of all old dataloggers, and then to implement that plan over the next 2-3 years. The Beaumont RAWS is to be moved a couple of miles. A portable that has been placed at the new site has so far compared well to the current site. Next, Devore is to be moved, but site selection is still to be done on that.

LA County (Jay L): They will convert 21 Vaisala stations to FTS. Of this 21, the per year schedule is 4 ordered for this FY, then 7, 7, and 3 if the 3 FYs following. LA County also has plans for a RAWS by the Palo Verdes Peninsula and one on Catalina Island... both will be new FTS stations.

NPS (Corky C): All of their 'Fire' RAWS have been upgraded to FTS, mostly in the past couple of years. NPS RAWS program oversight will get moved to Portland OR after Corky's retirement.

It will fall to the 'vice-Jason Loomis' position, which is a BLM FTE, but funded by the NPS.

OCFA (Jeff S): The anticipated zone split will require a new station in it. They are working on calculations for solar radiation on their RAWS.

USFS (Russ G): The USFS in Reg. 5 currently has 149 RAWS being used for NFDRS. 95 of these are now converted to FTS, with 54 to go. Russ and John had a recent site visit to a longtime manual station at a lookout on the Lassen NF. This is at Colby Mtn. in eastern Tehama Co.... it will be replaced with a RAWS soon.

Contract Counties: Santa Barbara Co. has plans for 3 new RAWS, two of which will sit on USFS property. These are in or near the Santa Ynez range. The southeastern-most will be just below San Marcos pass (by ~500') on a west aspect. The northwestern-most new RAWS will be near Gaviota, right before the freeway turns from running east-west along the coast to head north. The third station will be in between. Tom R felt that adding these three stations will cover the Santa Ynez front country quite well.

10. WIMS/NFDRS/PAL/PocketCards programs update (Russ G): The PAL program of the USFS has had no issues this past year. Russ is working with Jana from CALFIRE, as the state agency is interested to see if something 'PAL-like' might be useful to them. Russ shared these key Training dates from his program areas this off-season:

- WIMS class at McClellan TC - March 23-27, 2015. Training is 24 hours, focusing on the 'day to day operation of WIMS'. They also have a WIMS self-study course available, which is good for FBANs/LTANs.
- Intermediate NFDRS (S-491) class, at MTC April 13-17, 2015 (36 hours class time). It includes an introduction to NFDRS 16.
- Advanced NFDRS at NAFRI in Tucson AZ, Mar. 9-20, 2015...this was moved from the traditional February offering. The focus is on 'development of the local FDOP' – i.e. a Fire Danger Operating Plan.
- RAWS Maintenance course, at MTC – May 4-8, 2015. Focus is on Vaisala RAWS equipment.

11. Office of Emergency Services, OES Update (Ralph D): a) The OES 'engine program' continues to evolve. They plan to replace 5-7 Type 1 engines this year (out of 120+ total). The Chief recommended 25 Type 3 engines to be acquired...the plan is for OES regions 3, 4, and 5 to

get five each of the first 15 of these T-3s. b) HazMat – OES is concerned about the Bakkan (shale oil) import via rail. It is very volatile, more so than one would expect for having a designation as a type of ‘crude oil’. c) Regarding the Field Operations Guide (FOG), it will be available on an I-Phone platform prototype soon. They want to price the FOGs to make it a self-sustaining fund.

12. San Diego Gas and Electric update (Steve V): This utility has over the past few years developed an excellent dense weather observing network, 5 stations of which are RAWs. The expansion phase is winding down, as coverage goals have been reached, and also there is a lot of preventive maintenance required to keep such a network going well. They are relocating some of their stations based on lessons learned. In addition to the weather observation sites, they have a 915Mhz profiler/radiometer now operational. It can measure up to 4km altitude. Used at UCSD in spring and summer, and Santa Ysabel in fall and winter. They also have a 449 Mhz profiler awaiting licensing from the FAA which will be placed in Borrego Valley. This machine samples higher, up to about 10 km. It will also be useful for thunderstorm forecasting, which is of obvious importance to a Utility company. Steve discussed the May 2014 fires... the stats were: 14 fires for 26,000 acres. 46 homes were destroyed and there was a fatality. There was \$60 mil in damage, and SDGE had 82 outages affecting 80,000 customers. Steve also showed some very interesting research he’s done, linking dry monsoons over in India with subsequent wet (at or above normal rainfall) winters in San Diego portion of SoCal... the correlation was about 90%. And furthermore, if the Pacific Decadal Oscillation (PDO) is in its positive phase, and the Indian monsoon is on the dry side, the correlation jumps to 18 of 18 cases he looked at. These 18 cases ranged from 95% of normal to the wettest years on record there!

13. California Air Resources Board (CARB) Update (Dar M): PFIRS is doing well –there have been lots of users during this fall ’14 prescribed burn season, otherwise no major updates regarding PFIRS. Dar mentioned the recent CANSAC Board meeting, which was also an attempt to freshen things, make the group more robust, revitalized, and make useful for prioritizing needs and requests of user communities. Wintertime staffing needs have gone up due to the ongoing drought producing more year-round burning opportunities. Dar addressed the ARA (Air Resource Advisor) use for 2014 in CA, which was primarily in North Ops (only Meadow and French fires in SOPS required ARAs). This is about the third year of regular ARA use. Dar stressed that out-of-area ARAs should coordinate with the local experts early and regularly in their assignments, so that we’re all giving basically the same message, and in a cohesive, consistent manner. Alex Hoon and Jeff Shelton, who worked together as IMET and FBAN on Yosemite’s Meadow Fire this past year, gave strong kudos to having ARAs on the incident. Dar then bridged over to CARPA (CA Air Response Planning Alliance) activities. CARPA is soliciting input/ feedback on the Wildfire Smoke Response Coordination working draft. You can find it at <http://www.arb.ca.gov/smp/progdev/iasc/wildfirerresponse.pdf>

14. GACC Support during heavy fire periods (Jeff S): Jeff uses every opportunity he can to promote the use of GSANs (Geospatial Analyst). This is a budding field, and there is no Task Book for it yet, but one needs to be developed. He’d like to see a ‘punchlist’ of qualified folks made. Once they were ordered in ROSS by an incident, that one could ‘own them’. The applicable training class is S-495- Fire Analysis, Interpretation, and Application. It will be held at NAFRI Apr. 13-17, 2015. Will be getting more ‘WFDSS-centric’ this year. Cathy J stated

that AARs at North Ops indicated that they can currently handle 10-15 large fires at once rather well. This winter, her North Ops Intel shop wants to build a Template for adapting to increases above that, e.g. a second 'siege' level beginning, when another is already ongoing.

15. 2014 Eiler Fire severe damage (Hat Creek RD of Lassen NF and Shasta Unit of CALFIRE 2014). This was only briefly covered at our meeting, but is listed here for those interested. John S made two post-fire trips to the area (about 1.5 hours NE of North Ops in Redding) in August and September, following the fire of late July to mid-August. On the second trip he spent some time with research PhD Brad Muller, who was out while on sabbatical from Embry-Riddle University. In this fire there was a 2-3 mile long strip having almost continuous evidence of severe fire behavior and heavy timber blowdown, caused by a well-visually-documented huge firewhirl (was referred to as a 'fire tornado' by some). Brad published an article in Weatherwise magazine about firewhirls and extreme damage from some. See <http://www.tandfonline.com/doi/pdf/10.1080/00431672.2014.960326> if interested.

Next meeting will be May 20-21 in Sacramento