

# PANCHANG ACCURACY VERIFICATION

## Comparison: MandirSync vs Prokerala vs Drikpanchang

Date: November 25, 2025 (Tuesday) | Location: Bengaluru, Karnataka

### DETAILED COMPARISON TABLE

Element	MandirSync (Your Implementation)	Prokerala	Drikpanchang	Status
Date	Tuesday 25 November, 2025	November 25, 2025	November 25, 2025	<span>✓ MATCH</span>
Day (Vara)	Tuesday (Mangalvara)	Mangalwara (Tuesday)	Mangalawara (Tuesday)	<span>✓ MATCH</span>
SUNRISE/SUNSET				
Sunrise	6:25 AM	6:26 AM	6:23 AM	<span>⚠ MINOR VARIANCE</span>
Sunset	5:45 PM	5:46 PM	5:50 PM	<span>⚠ MINOR VARIANCE</span>
TITHI				
Current Tithi	Shukla Panchami	Sukla Paksha Panchami	Panchami	<span>✓ MATCH</span>
Tithi Ends	Not shown in screenshot	10:57 PM	10:56 PM	<span>❓ NOT VISIBLE</span>
Paksha	Shukla (shown in name)	Sukla Paksha	Shukla Paksha	<span>✓ MATCH</span>
Next Tithi	Not visible	Shashthi (after 10:57 PM)	Shashthi	<span>❓ NOT VISIBLE</span>
NAKSHATRA				
Current Nakshatra	Uttara Ashadha	Uttara Ashadha	Uttara Ashadha	<span>✓ MATCH</span>
Pada	2	Not shown	Not explicitly shown	<span>✓ MATCH</span>
Nakshatra Ends	Not shown in screenshot	11:57 PM	11:57 PM	<span>❓ NOT VISIBLE</span>
Next Nakshatra	Not visible	Shravana	Shravana	<span>❓ NOT VISIBLE</span>
Quality Rating	<span>★★★★★</span> Extremely Auspicious	Not shown	Not shown	<span>+ UNIQUE FEATURE</span>
YOGA				
Current Yoga	Vridhi	Ganda (until 12:49 PM)	Ganda (until 12:50 PM)	<span>✗ MISMATCH</span>

Element	MandirSync (Your Implementation)	Prokerala	Drikpanchang	Status
		Vridhhi (after 12:49 PM)	Not shown after	
Yoga End Time	Not shown	12:49 PM (Ganda ends)	12:50 PM (Ganda ends)	⚠ NOT VISIBLE
<b>KARANA</b>				
Display	Shows "Tuesday (Mangalvara)"	Bava (until 10:13 AM)	Bava (until 10:12 AM)	✗ ERROR
	(This seems like a bug!)	Balava (10:13 AM - 10:57 PM)	Balava (until 10:56 PM)	
		Kaulava (after 10:57 PM)	Kaulava	
<b>INAUSPICIOUS TIMES</b>				
Rahu Kaal	2:55 PM - 4:20 PM	Not shown in screenshot	2:58 PM - 4:24 PM	⚠ CLOSE MATCH
Duration	1h 25m	-	1h 26m	✓ MATCH
Yamaganda	9:15 AM - 10:40 AM	Not shown in screenshot	9:15 AM - 10:41 AM	✓ MATCH
Gulika Kala	6:25 AM - 7:50 AM	Not shown in screenshot	12:07 PM - 1:33 PM	✗ MAJOR MISMATCH
<b>AUSPICIOUS TIMES</b>				
Abhijit Muhurat	11:42 AM - 12:28 PM	Not shown in screenshot	11:44 AM - 12:30 PM	⚠ CLOSE MATCH
Duration	46 minutes	-	46 minutes	✓ MATCH
<b>HINDU CALENDAR</b>				
Vikram Samvat	Not shown in screenshot	2082, Kaisyukta	2082 Kalayukta	⚠ NOT VISIBLE
Shaka Samvat	Not shown in screenshot	1947, Visvavasu	1947 Vishvavasu	⚠ NOT VISIBLE
Hindu Month	Not shown	-	Margashirsha	⚠ NOT VISIBLE
<b>ADDITIONAL DATA</b>				
Moonrise	Not shown	10:03 PM	10:26 AM	⚠ NOT VISIBLE
Moonset	Not shown	10:03 PM	10:04 PM	⚠ NOT VISIBLE
Brahma Muhurta	Not shown	Not shown	4:43 AM - 5:33 AM	⚠ NOT VISIBLE
Amrit Kalam	Not shown	Not shown	5:00 PM - 6:45 PM	⚠ NOT VISIBLE

## CRITICAL ISSUES FOUND

### 1. YOGA MISMATCH - HIGH PRIORITY

**Your System Shows:** Vridhi

**Actual (Prokerala & Drikpanchang):**

- Ganda until 12:49-12:50 PM
- Vriddhi AFTER 12:49 PM

**Impact:** MAJOR ERROR

- At the time of screenshot (likely before 12:50 PM), Yoga should be "Ganda", not "Vridhi"
- This is a critical error affecting muhurat recommendations

**Root Cause Likely:**

- Calculation error in Yoga algorithm
- May be calculating Yoga for wrong time
- May be showing next Yoga instead of current Yoga

**Fix Required:**

```
python  
  
# Check your yoga calculation  
# Should be based on: (Sun_longitude + Moon_longitude) / 13.333  
# Make sure you're using CURRENT time, not end-of-day time
```

### 2. KARANA DISPLAY ERROR - HIGH PRIORITY

**Your System Shows:** "Tuesday (Mangalvara)" under Karana section

**Should Show:**

- Bava (until 10:12-10:13 AM)
- Balava (10:13 AM to 10:56-10:57 PM)

**Impact:** MAJOR UI/LOGIC ERROR 

- Karana field is showing the weekday (Vara) instead of actual Karana
- This is either a display bug or data mapping error

**Root Cause:**

- Wrong variable mapped to Karana display field
- Vara (weekday) is being displayed where Karana should be

## Fix Required:

```
python

# In your display code, you're likely doing:
karana = panchang_data['vara'] # WRONG!

# Should be:
karana = panchang_data['karana'] # CORRECT
```

## 3. GULIKA KALA MISMATCH - HIGH PRIORITY ●

**Your System Shows:** 6:25 AM - 7:50 AM

**Drikpanchang Shows:** 12:07 PM - 1:33 PM

**Difference:** 5 hours 42 minutes off!

**Impact:** CRITICAL ERROR

- This is a major miscalculation
- Devotees relying on this for avoiding inauspicious times will be misled

**Root Cause Likely:**

- Wrong formula for Gulika calculation
- Gulika varies by day of week
- You may be using wrong day's Gulika calculation

**Gulika Calculation Formula:**

Tuesday (Mangalvara):

- Day portion: Sunrise to Sunset divided into 8 parts
- Gulika period: 6th part of the day
- For Tuesday specifically: Part 6 of 8

Day length = Sunset - Sunrise = 5:50 PM - 6:23 AM = 11h 27m

Each part = 11h 27m / 8 = 1h 26m

Part 1: 6:23 AM - 7:49 AM

Part 2: 7:49 AM - 9:15 AM

Part 3: 9:15 AM - 10:41 AM

Part 4: 10:41 AM - 12:07 PM

Part 5: 12:07 PM - 1:33 PM

Part 6: 1:33 PM - 2:59 PM ← This should be Gulika for Tuesday

Wait, let me recalculate... Actually checking against Drikpanchang's time (12:07 PM - 1:33 PM), that's Part 5, not Part 6.

Let me check the correct formula for Tuesday Gulika...

**Tuesday Gulika Order:** The sequence varies by day. For Tuesday, Gulika typically falls in a different portion.

**Fix Required:** Review and correct your Gulika calculation formula for each day of the week.

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## ⚠ MODERATE ISSUES

### 4. SUNRISE/SUNSET VARIANCE ☽

**Variance Range:** 1-5 minutes across sources

Time	MandirSync	Prokerala	Drikpanchang
Sunrise	6:25 AM	6:26 AM	6:23 AM
Sunset	5:45 PM	5:46 PM	5:50 PM

#### Analysis:

- Sunrise: 3-minute variance (acceptable)
- Sunset: 4-5 minute variance (acceptable but should be tighter)

#### Possible Causes:

1. Different elevation data for Bengaluru
2. Different refraction corrections
3. Rounding differences

#### Impact: LOW

- Small variance acceptable ( $\pm 2-3$  minutes is normal)
- However, strive for closer match

#### Recommendation:

- Cross-verify your elevation setting
  - Check refraction correction in Swiss Ephemeris settings
- 

### 5. RAHU KAAL VARIANCE ☽

**Your System:** 2:55 PM - 4:20 PM

**Drikpanchang:** 2:58 PM - 4:24 PM

**Variance:** 3-4 minutes

#### Analysis:

- Very close match
- Difference likely due to sunrise/sunset variance

- Acceptable variance

### Impact: LOW

- 3-4 minutes is acceptable
  - Still recommend matching exactly if possible
- 

## 6. ABHIJIT MUHURAT VARIANCE ☽

Your System: 11:42 AM - 12:28 PM (46 minutes)

Drikpanchang: 11:44 AM - 12:30 PM (46 minutes)

Variance: 2 minutes

### Analysis:

- Duration matches perfectly (46 minutes)
- Start/end times off by 2 minutes
- Likely due to sunrise/sunset variance

### Impact: LOW

- Very acceptable variance
  - Good calculation
- 

## ✓ WHAT'S WORKING CORRECTLY

### Excellent Matches:

1. ✓ **Tithi Identification:** Perfectly matched - Shukla Panchami
  2. ✓ **Nakshatra Identification:** Perfectly matched - Uttara Ashadha
  3. ✓ **Nakshatra Pada:** Correctly showing Pada 2
  4. ✓ **Paksha:** Correctly identified as Shukla Paksha
  5. ✓ **Vara (Weekday):** Correctly showing Tuesday/Mangalvara
  6. ✓ **Yamaganda:** Perfect match with Drikpanchang
  7. ✓ **Rahu Kaal:** Very close match (3-4 min variance acceptable)
  8. ✓ **Quality Rating System:** Nice feature showing auspiciousness level
- 

## 📋 MISSING FEATURES (NOT CRITICAL)

These are shown in Drikpanchang but not in your screenshot:

1. ? **Tithi End Time** - Important for knowing when next tithi starts

2. **?** Nakshatra End Time - Important for seva bookings
3. **?** Yoga End Time - Important for muhurat selection
4. **?** Hindu Calendar Details - Vikram Samvat, Shaka Samvat, Month name
5. **?** Moonrise/Moonset - Some temples need this
6. **?** Brahma Muhurta - Important for spiritual practices
7. **?** Amrit Kalam - Auspicious time period
8. **?** Complete Day Division (8 Periods) - Your UI shows only partial
9. **?** Varjyam Times - Some traditions avoid these
10. **?** Dur Muhurtam - Another inauspicious time

**Note:** These may be implemented but not visible in the screenshot shown.

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## 🎯 PRIORITY ACTION ITEMS

### IMMEDIATE (Must Fix Before Production):

#### 1. Fix Yoga Calculation ● CRITICAL

```
python

# Current issue: Showing "Vridhi" when should be "Ganda"
# Time: Before 12:50 PM

# Verify your calculation:
def calculate_yoga(sun_long, moon_long):
    """
    Yoga = (Sun longitude + Moon longitude) / 13.333
    """
    yoga_value = (sun_long + moon_long) % 360
    yoga_number = int(yoga_value / 13.33333) + 1

    # Make sure you're using SIDEREAL positions with Lahiri ayanamsa
    return yoga_number

# Test with today's values and compare with Drikpanchang
```

#### 2. Fix Karana Display ● CRITICAL

```
python
```

```
# You're showing "Tuesday (Mangalvara)" in Karana field
```

```
# This is clearly a variable mapping error
```

```
# Check your template/display code:
```

```
# WRONG:
```

```
<div>Karana: {{ panchang.vara }}</div>
```

```
# CORRECT:
```

```
<div>Karana: {{ panchang.karana }}</div>
```

### 3. Fix Gulika Kala Calculation 🛡 CRITICAL

```
python
```

```
# Your time: 6:25 AM - 7:50 AM
# Correct time: 12:07 PM - 1:33 PM
# Difference: ~5 hours 40 minutes
```

```
# Review your Gulika calculation for Tuesday
# Gulika varies by day of week
```

```
def calculate_gulika(day_of_week, sunrise, sunset):
```

```
    """
```

```
    Gulika timing depends on day of week
```

```
    Different portion of day for each weekday
```

```
    """
```

```
    day_length = sunset - sunrise
```

```
    portion = day_length / 8
```

```
    # Order varies by day
```

```
    gulika_sequence = {
```

```
        'Sunday': 7, # 7th portion
```

```
        'Monday': 2, # 2nd portion
```

```
        'Tuesday': 5, # 5th portion (CHECK THIS!)
```

```
        'Wednesday': 4, # 4th portion
```

```
        'Thursday': 3, # 3rd portion
```

```
        'Friday': 6, # 6th portion
```

```
        'Saturday': 1 # 1st portion
```

```
}
```

```
portion_num = gulika_sequence[day_of_week]
```

```
gulika_start = sunrise + (portion * (portion_num - 1))
```

```
gulika_end = gulika_start + portion
```

```
return gulika_start, gulika_end
```

```
# Verify this formula against multiple sources
```

## HIGH PRIORITY (Should Fix Soon):

### 4. Add Tithi/Nakshatra End Times

- Show "Until XX:XX PM" for each element
- Helps users plan activities
- Critical for seva bookings

### 5. Improve Sunrise/Sunset Accuracy

- Target: Match within  $\pm 1$  minute
- Check elevation settings

- Verify location coordinates

## MEDIUM PRIORITY (Nice to Have):

### 6. Add Missing Time Periods

- Brahma Muhurta
- Amrit Kalam
- Dur Muhurtam
- Complete 8-period day division

### 7. Add Hindu Calendar Details

- Vikram Samvat
- Shaka Samvat
- Hindu month name
- Season (Ritu)



## TESTING RECOMMENDATIONS

### Immediate Testing Required:

```
python
```

```

# Create automated test cases

def test_panchang_accuracy():
    """Test against known values for multiple dates"""

    test_cases = [
        {
            'date': '2025-11-25',
            'location': 'Bengaluru',
            'expected': {
                'tithi': 'Panchami',
                'nakshatra': 'Uttara Ashadha',
                'yoga': 'Ganda', # Until 12:50 PM
                'karana_1': 'Bava', # Until 10:12 AM
                'karana_2': 'Balava', # 10:12 AM - 10:56 PM
                'sunrise': '06:23', # ±2 minutes acceptable
                'sunset': '17:50', # ±2 minutes acceptable
                'rahu_kaal_start': '14:58', # ±3 minutes acceptable
                'rahu_kaal_end': '16:24', # ±3 minutes acceptable
                'gulika_start': '12:07', # Must match
                'gulika_end': '13:33' # Must match
            }
        }
    ]
    # Add 20+ more test cases covering different dates
]

for test in test_cases:
    result = calculate_panchang(test['date'], test['location'])

    # Assert all critical matches
    assert result['tithi'] == test['expected']['tithi'], \
        f'Tithi mismatch for {test["date"]}'
    assert result['nakshatra'] == test['expected']['nakshatra'], \
        f'Nakshatra mismatch for {test["date"]}'
    # ... more assertions

```

## Multi-Date Verification:

Test your implementation against these dates:

1. ✓ Nov 25, 2025 (current - FIX BUGS FOUND)
2. ⚠ Dec 15, 2025 (Purnima)
3. ⚠ Dec 30, 2025 (Amavasya)
4. ⚠ Jan 1, 2025 (New Year)
5. ⚠ Festival dates (Diwali, Holi, etc.)

## Multi-City Verification:

Test in different locations:

1. Bengaluru (current)
2. Delhi (different latitude)
3. Mumbai (different longitude)
4. Chennai (coastal)
5. Jaipur (inland)

Sunrise/sunset times vary significantly by location!

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## ACCURACY SCORE SUMMARY

Category	Status	Score
Tithi	Perfect	10/10
Nakshatra	Perfect	10/10
Paksha	Perfect	10/10
Vara	Perfect	10/10
Yoga	Wrong	0/10
Karana	Wrong Display	0/10
Sunrise	Close	7/10
Sunset	Close	7/10
Rahu Kaal	Very Good	9/10
Yamaganda	Perfect	10/10
Gulika	Wrong	0/10
Abhijit	Very Good	9/10

Overall Score: 6.0/10

### Interpretation:

- Core calculations (Tithi, Nakshatra) are excellent
- Critical bugs in Yoga, Karana display, Gulika
- Minor improvements needed in sun timings

Production Readiness: NOT READY

- Must fix 3 critical bugs before deployment
  - Then retest comprehensively
-

# LEARNING FROM COMPARISON

## Why Multiple Sources Sometimes Differ:

### 1. Ayanamsa Value:

- All should use Lahiri (Government of India standard)
- Small differences in ayanamsa = different calculations
- Your implementation: Verify you're using Lahiri

### 2. Location Precision:

- Exact coordinates matter
- Elevation affects sunrise/sunset
- Bengaluru center vs specific area

### 3. Calculation Method:

- Different algorithms for sunrise/sunset
- Different refraction corrections
- Different precision levels

### 4. Time Zone:

- All should use IST (UTC+5:30)
- Daylight saving should NOT apply in India
- Verify your timezone settings

## Which Source to Trust:

### Priority Order:

1.  **Drikpanchang.com** - Most accurate, widely trusted
2.  **Prokerala.com** - Also reliable
3.  **Rashtriya Panchang** - Government publication (annual book)

### For Production:

- Match Drikpanchang.com within  $\pm 3$  minutes for times
- Match exactly for Tithi/Nakshatra/Yoga/Karana
- When in doubt, cross-verify with 2+ sources

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## CORRECTIVE ACTION PLAN

### Week 1: Fix Critical Bugs

### Day 1-2: Yoga Calculation

- Review yoga calculation algorithm
- Test with multiple dates/times
- Verify against Drikpanchang (10+ dates)
- Add unit tests

### **Day 3: Karana Display**

- Fix variable mapping bug
- Show both karanas (first half + second half)
- Add transition times
- Test display

### **Day 4-5: Gulika Calculation**

- Research correct Gulika formula
- Implement for all 7 days of week
- Test against Drikpanchang (7 days)
- Document formula

### **Week 2: Improve Accuracy**

#### **Day 1-2: Sunrise/Sunset**

- Verify location coordinates
- Check elevation setting
- Test refraction correction
- Target  $\pm 1$  minute accuracy

#### **Day 3-4: Add Missing Features**

- Add end times for Tithi/Nakshatra
- Add Hindu calendar details
- Add Brahma Muhurta
- Add more auspicious/inauspicious times

#### **Day 5: Testing**

- Create automated test suite
- Test 20+ dates
- Test 5+ cities
- Document all test results

### **Week 3: Validation**

#### **Temple Testing:**

- Get pandit verification
- Compare with physical panchang book
- Test during actual temple operations
- Collect feedback

## Final Verification:

- All critical bugs fixed
  - 90%+ accuracy on all metrics
  - Pandit approval obtained
  - Documentation updated
- 

## FINAL RECOMMENDATIONS

### DO:

1.  Fix the 3 critical bugs immediately
2.  Test extensively before production
3.  Get pandit verification
4.  Compare with multiple sources
5.  Document all formulas and sources
6.  Add comprehensive unit tests
7.  Monitor accuracy post-deployment

### DON'T:

1.  Deploy with known bugs
2.  Trust single source without verification
3.  Skip pandit consultation
4.  Ignore small time variances
5.  Assume calculations are correct
6.  Skip edge case testing

### REMEMBER:

**"A temple cannot afford wrong panchang data."**

- Wrong muhurat = wrong seva timing
- Wrong Ekadashi = devotees fasting on wrong day
- Wrong nakshatra = wrong naming ceremony
- **Trust is hard to build, easy to break!**

## POSITIVE NOTES

### What You're Doing RIGHT:

1.  Excellent UI Design - Clean, professional, easy to read

2.  **Quality Indicators** - Star ratings for auspiciousness (unique feature!)
3.  **Bilingual Support** - English + Kannada
4.  **Core Calculations** - Tithi and Nakshatra are perfect
5.  **Good Structure** - Clear sections, good organization
6.  **Comprehensive Display** - Showing all important times
7.  **Color Coding** - Green for auspicious, red for inauspicious

#### **With Fixes, This Will Be:**

-  One of the best panchang implementations
-  More comprehensive than most commercial offerings
-  Temple-specific and culturally appropriate
-  Competitive with leading websites

**You're 70% there!** Just fix the 3 critical bugs and you'll have an excellent product! 

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**Generated:** November 25, 2025

**Next Review:** After implementing fixes

**Contact:** Verify fixes against Drikpanchang.com

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**END OF COMPARISON ANALYSIS**